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TECHNICAL BULLETIN

OPERATING GUIDE
FOR
MEDICAL EQUIPMENT MAINTENANCE

HEADQUARTERS, DEPARTMENT OF THE ARMY

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OPERATING GUIDE FOR MEDICAL EQUIPMENT MAINTENANCE

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***This bulletin supersedes TB MED 750-1, 14 August 1997.**

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Purpose.

a. This operating guide provides policy and procedures used to manage and operate health services maintenance activities. Use it to comply with the directives and policies prescribed by Army regulations (ARs), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), Title 21, Code of Federal Regulations (CFRs), subchapter J, Radiological Health, and other regulatory guidance

b. This operating guide also provides uniform guidance and direction to standardize operating procedures. Paraphrased in this bulletin are major policies and responsibilities established in other regulations to afford an understanding of their interaction with medical equipment maintenance.

1-2. Applicability.

This operating guide applies to all Army Medical Department (AMEDD) organizations to some extent.

1-3. References.

Appendix A lists related publications and prescribed and referenced forms. These references provide the regulatory basis for the guidance contained in this bulletin. Maintenance activities will maintain a library of those publications used on a frequent basis, and be knowledgeable of the locations of less frequently used publications.

1-4. Explanation of abbreviations and terms.

The glossary contains abbreviations and explains special terms used in this operating guide.

1-5. Standards of medical maintenance.

Equipment used by medical personnel is of critical importance since its purpose is to save lives and prevent suffering of the sick and wounded. Therefore, the highest standards of maintenance for medical equipment are mandatory.

Section II. RESPONSIBILITES

1-6. Commanders.

Maintenance of equipment is a command responsibility. Adequacy and completeness of a unit maintenance program are a reflection of command interest. Maintenance operations, regardless of the unit mission or size, are analyzed on eight factors that can affect maintenance: command, personnel, time, tools, repair parts, records, publications, and facilities. Command is the most critical factor since it is the only factor that can directly influence each of the others. Commanders will:

a. Bring the applicable provisions of operating guide to the attention of all concerned and make them readily available to the staff.

b. Allocate adequate time for equipment operator (EO) preventive maintenance services on a scheduled basis.

c. Evaluate the performance of EOs and organizational maintenance through maintenance inspections. Correct deficiencies found during inspections.

d. Establish periodic in-service and/or formal training in maintenance programs for EOs.

e. Program periodic in-service, formal Army training, and/or manufacturer training for equipment maintainers, particularly for new equipment introduced into the activity.

f. Use assigned Medical Equipment Repairers (MERs) for medical maintenance duties. Do not assign MERs additional duties that may adversely affect the maintenance of medical equipment. Do not routinely use MERs for other than the maintenance of medical equipment.

g. Prevent the abuse of materiel under user control. Investigate the evidence of abuse and take corrective action.

h. Ensure current operator manuals are readily available to the EOs of all medical equipment.

i. Program and make available tools and test equipment necessary to maintain new equipment introduced into the activity.

j. Provide maintenance services to satellite activities on a scheduled basis rather than on a convenience basis.

k. Program sufficient travel funds so that maintenance personnel may perform preventive maintenance services at satellite activities.

l. Provide the best maintenance facilities possible. Arrange maintenance facilities to provide efficient services with maximum use of space. The shop should be as centrally located as possible, be accessible, and have ample, secure, storage space for repair parts, supplies, tools, test equipment, and equipment awaiting repair and/or parts. Appendix B lists guidance for evaluating existing space allocations.

m. Maintain the Army Medical Department Property Accounting System (AMEDDPAS) records according to Automated Data Systems Manual (ADSM) 18-HL3-RPB-IBM-UM.

n. Establish written policies and procedures pertaining to equipment maintenance for those areas enumerated under the "Environment of Care Standards" section of the JCAHO manual.

o. Publish a command directive that emphasizes EO maintenance.

1-7. Maintenance managers.

A medical equipment maintenance activity, under the operational control of a warrant officer (WO), noncommissioned officer (NCO), or civilian supervisor, accomplishes organizational maintenance for medical equipment in a timely, economical, and professional manner. Due to ever-changing operational requirements and conditions, effective maintenance management requires leadership, planning, organization, assignment of responsibilities, functions and resources, direction, and flexibility. Of daily concern is the management of resources (tools, test equipment, standby equipment, repair parts, time, and personnel). All resources must be present in sufficient quantity when needed to accomplish the maintenance mission. The establishment of priorities is a primary task. Managers will:

a. Meet the basic concepts, objectives, and policies of The Surgeon General for the maintenance of medical equipment.

b. Effectively perform the maintenance of Army-owned or supported medical materiel through its life cycle.

c. Implement maintenance programs for repair, preventive maintenance checks and services (PMCS), safety testing and calibration/verification/certification (CVC) of medical materiel.

d. Establish command implementing guidance (if required) to established maintenance programs and establish Standing Operating Procedures (SOPs) for the operation of the maintenance activity.

e. Provide planning, guidance, and assistance to other organizational elements which impact on the maintenance mission. This includes providing guidance and assistance to:

(1) Plans, Training, Mobilization, and Security Divisions in the development of educational and training programs in maintenance for EOs and assigned MERs.

(2) Personnel Division in the timely reporting of projected personnel losses.

(3) Resource Manager in the development of labor rates for maintenance services and in providing temporary duty (TDY)/travel requirements and other resources required for programs, budgets, and training.

f. Provide ancillary maintenance services according to the provisions of applicable regulations.

g. Expeditiously implement evolving automated maintenance management systems.

h. Establish a system for visually identifying defective equipment (that must remain in place) to alert potential users.

i. Keep Commanders and staff informed on the status of medical equipment maintenance and associated programs.

j. Establish a master file of both operator and maintenance manuals in the maintenance activity for equipment in use.

k. Establish a functional file system according to AR 25-400-2.

l. Establish and maintain a current maintenance library of administrative publications needed in the management of the maintenance activity.

1-8. Supervisory/leader personnel.

Although supervisory duties and responsibilities are inherent in the management of all subfunctions of a medical equipment maintenance activity, those listed herein pertain primarily to maintenance and repair operations. To accomplish production planning goals, supervisors must concurrently consider the basic human needs of their personnel by:

a. Ensuring the assignment of scheduled and unscheduled workloads to qualified repairers commensurate with their training.

b. Maintaining timely and informative communications with their hospital counterparts concerning maintenance services.

c. Ensuring the interpretation and application of maintenance service procedures are according to military and/or manufacturer's instructions.

d. Ensuring individuals are knowledgeable of regulatory requirements such as Radiological Health, JCAHO standards and procedures, and National Fire Protection Association (NFPA) codes.

e. Complying with administrative requirements and procedures in the completion of all assigned tasks.

f. Recognizing MERs that illustrate outstanding performance of duties. Conversely, bringing disciplinary problems or additional training requirements to the attention of the appropriate levels of supervision or command.

g. Ensuring MERs are knowledgeable of hazard communications (HAZCOM), lockout/tagout, and other applicable Occupational Safety and Health Act (OSHA), Department of the Army (DA), U.S. Army Major Commands (MACOMs), and local safety program requirements.

1-9. Medical Equipment Repairers.

Maintenance services, whether performed by military or civilian personnel, must be accomplished within established guidelines in a timely, professional manner. Repairers will:

a. Ensure documentation and associated maintenance forms are legible and in compliance with local SOPs, the AMEDDPAS Users Manual, and other applicable directives.

b. Strictly adhere to safety procedures during maintenance operations.

c. Perform PMCS and CVC services according to the manufacturer's instructions and this bulletin.

d. Perform safety inspections and testing according to NFPA 99 and this bulletin.

e. Assume personal responsibility for identifying and pursuing professional or technical training and career development.

f. Bring unsafe equipment operations to the attention of user/operator personnel and their supervisors.

g. Communicate all maintenance related problems to the maintenance supervisor.

1-10. Equipment operators and supervisors.

The range and complexity of medical equipment used to provide healthcare require that EOs and their supervisors be responsible for their portion of the activity maintenance program. The EOs and/or supervisors will:

a. Perform before, during, and after operation maintenance tasks according to technical manuals (TMs), manufacturers' instructions, and TM 8-6500-001-10-PMCS. The EO tasks usually consist of the care and cleaning of exterior surfaces, components, and accessories. The EO tasks also include the replacement of bulbs, tubing, etc., that are easily accessible and do not require tools or test equipment.

b. Promptly report malfunctioning equipment to the supporting medical maintenance activity.

c. Expeditiously initiate a maintenance request for any maintenance service beyond those authorized as part of the EO's daily operations.

d. Maintain EO manuals for all technical items of equipment.

Section III. MAINTENANCE PUBLICATIONS AND DIRECTIVES

1-11. Local maintenance publications.

Review internal SOPs and external maintenance support procedures every 18 months and update to reflect changes in DA maintenance policies.

1-12. Commander's implementing directives.

a. Commanders will publish an external maintenance support directive for use by their customers.

b. Each maintenance activity will develop and publish an external SOP. This SOP will establish the procedures a customer must be aware of when acquiring maintenance support.

1-13. Standing operating procedures.

a. Each activity having organizational medical maintenance capability will publish an internal SOP. This SOP becomes directive when signed by the Director of Industrial Operations (DIO), Director of Logistics (DOL), Chief, Logistics Division, or Chief, Medical Maintenance Branch.

b. The internal maintenance SOP will designate individual responsibilities and, as a minimum, will provide instructions for the performance of maintenance tasks related to the areas identified in appendix C.

c. Each maintenance activity will develop and publish an external SOP (appendix C). This SOP will establish the procedures a customer must follow when acquiring maintenance support.

1-14. Desk reference manuals.

a. In addition to the internal SOP, the maintenance activity should develop a desk reference for each MER's use. Consider the development of a desk reference manual for repair parts, tool room operation, and AMEDDPAS procedures.

b. Desk reference manuals give a person performing routine day-to-day tasks the detailed instructions necessary to complete the tasks with the least amount of supervisory assistance. The manual should contain step by step procedures in sufficient detail to enable a newly assigned repairer to perform assigned duties.

c. Providing adequate instructions and sample formats in a desk reference manual result in less time being required by the supervisor to train new personnel.

d. The repair parts and AMEDDPAS desk references provide details to the extent that other branch personnel could assume these duties in the event regularly assigned personnel are absent.

e. Appendix D lists suggested items for inclusion in each desk reference manual.

f. Write the internal maintenance SOP to include detailed instructions when the development of a desk reference manual is deemed unnecessary.

Section IV. MAINTENANCE MANAGEMENT

1-15. Management.

a. Maintenance management is the process of establishing objectives to carry out maintenance responsibilities. Maintenance management consists of those continuing actions of planning, organizing, directing, coordinating, controlling, and evaluating the use of personnel, funds, and facilities to accomplish missions and tasks.

b. A prime management objective is to ensure optimal managerial control of critical maintenance resources. A way to accomplish this objective is to establish standards of performance for operational elements and a management data collection and reporting system for measuring and evaluating each medical maintenance activity's performance.

1-16. Management subfunctions.

Shop management is composed of three basic subfunctions: supervision and administration, workload control, and maintenance and repair operations.

a. *Supervision and administration.*

(1) Supervision is the element of the management subfunction that makes the organizational maintenance facility productive by effectively managing the resources available to accomplish the maintenance mission. Supervision consists of forecasting requirements and planning for the acquisition of resources used in the performance of the maintenance mission (i.e., funds, personnel, supplies, repair parts, tools, test, measurement, and diagnostic equipment (TMDE), publications, and facilities).

(2) Administration includes the tasks related to obtaining resources, maintaining equipment historical records, performance evaluation and reporting, man-hour accounting, and maintaining reference files. Also included are those tasks that are indirect to the physical performance of maintenance services and/or repair actions.

b. *Workload control.*

(1) The maintenance manager must use workload control to identify work requirements and decide the capabilities that exist with available resources. Use workload control for:

(a) Analyzing requirements and directing resources toward the accomplishment of maintenance operations.

(b) Forecasting requirements for scheduled and unscheduled services using automated reports and outputs.

(2) The maintenance manager has the following automated reports and outputs at his/her disposal to accomplish the above.

(a) Work Order Register and Repetitive Maintenance Report — Provides maintenance data used to prioritize the workload and sufficient information to determine repair limitations.

(b) Monthly Maintenance Performance Report (MMPR) — Provides statistical data to evaluate overall maintenance performance.

(c) Monthly Scheduled Service Work Order Listing — Provides a list of monthly scheduled service work orders for equipment due services and the estimated man-hours needed to perform those services.

(d) Monthly Cancelled/Delinquent Work Order Listing — A list of cancelled monthly scheduled service work orders with special action codes of IR, IU, NL, WC, or SC.

(e) Scheduled Services Summary List — A listing of the man-hours required to perform scheduled services each month with a calendar year total.

(3) Workload control requires the judicious use of available resources. Consider time-consuming projects such as equipment installations that cause scheduled and routine unscheduled services to become backlogged for depot or contractual type maintenance assistance.

c. Maintenance and repair operations. Chapter 2 covers the aspects of maintenance and repair operations in detail.

(1) Maintenance and repair operations are the physical performance of those tasks involved in completing scheduled, unscheduled, and ancillary services.

(2) The effectiveness of the maintenance and repair operation program is dependent on the other subfunctions. Administrative tasks must be accomplished before and after the performance of maintenance services.

(3) Supervisors must have factual management information in effectively evaluating and managing their operation. Obtain information from the maintenance man-hour accounting system.

1-17. Authorized database system.

a. All table of distribution and allowance (TDA) medical activities with an organic maintenance capability will use AMEDDPAS to manage their equipment maintenence program.

(1) The system-produced medical equipment historical records are the official records of the activity and satisfy the requirements of the JCAHO.

(2) Do not maintain dual records, except for those required to meet College of American Pathologists (CAP) requirements, without prior approval.

(3) Installations may use AMEDDPAS and AMEDDPAS procedures to manage their nonmedical equipment providing other DA directives do not govern the equipment. The maintenance expenditure limit (MEL) established by AMEDDPAS is for medical equipment only. Activities performing repairs on nonmedical equipment will use the appropriate technical bulletin (TB) for the stock class of equipment being considered for repair.

b. All TDA maintenance activities will establish historical records for subsystem "B" items and group managed areas.

c. ADSM 18-HL3-IBM-UM (AMEDDPAS User's Manual) and this bulletin contain instructions for the use of AMEDDPAS.

CHAPTER 2

MAINTENANCE AND REPAIR OPERATIONS

Section I. MAINTENANCE OPERATIONS

2-1. Authorized maintenance.

a. Medical activities are authorized a maintenance capability.

b. Maintenance operations consist of any action taken to retain or restore materiel to operational serviceability. The scope of maintenance tasks ranges from PMCS performed by the EO to direct support (DS) maintenance.

c. Walter Reed Army Medical Center is authorized combined maintenance operations.

(1) This Center maintenance division/branch will establish a PMCS program for nonmedical equipment when that activity has routine repair responsibility.

(2) Intervals for the performance of PMCS on nonmedical equipment will be in accordance with (IAW) DA directives or manufacturers' directions. Use annually when no interval is prescribed.

2-2. Equipment management.

a. Equipment management is a command responsibility. Each commander will provide for the maintenance of equipment (medical/nonmedical) issued to or under the responsibility of his/her activity to include the efficiency of programs established for this purpose.

b. The maintenance of medical equipment includes:

(1) PMCS performed by an EO, PMCS performed by a MER, electrical safety inspections and tests, and CVC services.

(2) Remedial maintenance (unscheduled repairs)

(3) Overhaul and rebuild.

(4) Ancillary services

2-3. Levels of maintenance.

a. *Levels of maintenance.* AR 40-61 and AR 750-1 define the levels of maintenance. The following paragraphs indicate how these levels apply.

b. *Unit and direct support maintenance.*

(1) TDA medical maintenance activities perform unit and direct support maintenance on medical equipment in their possession or in the possession of their supported satellite activities

(2) Activities will provide support within their geographical area of responsibility IAW MACOM directives.

c. *Depot-level maintenance.* AR 40-61 and AR 750-2 explain depot maintenance, their mission, concept, functions, responsibilities, and equipment evacuation procedures.

2-4. AMEDDPAS equipment database.

a. AMEDDPAS is the only equipment database management system authorized for use by TDA activities.

b. Include items of equipment requiring an individual historical record in the AMEDDPAS equipment database as subsystem "B."

c. The maintenance activity is the only activity authorized to assign a subsystem code of "B" to equipment on the property book.

d Maintenance management personnel, in conjunction with other system users, are responsible for keeping the database current and accurate

e The maintenance manager has the responsibility of making the final determination as to what items of medical equipment become subsystem "B" in the equipment database. Adhere to the following when considering an item for inclusion into your database

(1) Consider every item of medical equipment during the initial pre-issue technical inspection (TI)

(2) Consider all electrical equipment.

(3) Consider all equipment intended for use in critical patient care areas and/or wet locations

(4) Include all equipment that the manufacturer recommends, or has written procedures for the performance of routine periodic calibrations or verifications

(5) Include any equipment item you feel could pose a risk to a patient's safety or health. This would ensure maintenance tracking if an incident occurred (example: electric hospital beds.) Known incidents have occurred in the past resulting in a death.

(6) Include any equipment item you, through experience, feel should have a separate maintenance history

(7) Refer to appendix G for risk assessment guidance

f Group manage nontechnical medical equipment and equipment for satellite activities by establishing group managed "Z" materiel management control numbers (MMCNs) IAW AMEDDPAS procedures. Consider establishing a "Z" for each scheduled maintenance area code (SMAC) and/or each hand receipt with medical equipment.

(1) Density lists of group managed items are not required.

(2) Scheduled services intervals:

(a) PMCS - Semiannual

(b) Safety - Semiannual or annual

NOTE

Medical equipment in patient care areas and not included in the database will receive PMCS and safety testing (if applicable) semiannually.

(c) CVC - Establish the interval of the most frequent requirement. The designation of CVC services on group managed records only applies to satellite activities using a different property book.

g The property book officer (PBO) will include nongovernment owned medical equipment on the activity's property book. The maintenance manager will consider including these items in the maintenance database based on paragraph 2-4e above. Examples of nongovernment owned equipment are:

(1) Equipment used in the laboratory acquired through a cost-per-test contract.

(2) Equipment acquired through a government lease or rental agreement with a civilian vendor. It may not be necessary to include equipment that will be in the facility for 6 months or less.

2-5. Maintenance reimbursement policies.

Reimbursement policies for medical equipment services and repair parts provided to reimbursable activities will be IAW MACOM directives.

2-6. Equipment not on the property book.

a Process equipment not on the property book through the property management office (PMO) before expending resources toward repairing the equipment.

b In an emergency, process the work order using the group managed MMCN for the requesting hand receipt or activity. Verify government ownership first.

2-7. Performance standards.

a. Chapter 6 contains performance standards for the completion of scheduled services.

b. The performance objective for direct labor manpower utilization is 100 percent. The minimum acceptable level is 95 percent. A utilization factor less than 95 percent or greater than 100 percent requires management review and analysis.

2-8. Medical materiel complaints.

a Report medical equipment determined to be harmful or defective to the extent that use has caused or may cause death, serious injury, serious illness as a medical materiel complaint IAW AR 40-61. Also report equipment that is unsatisfactory because of malfunction, design, defects (attributable to faulty materials, workmanship, and/or quality control), or performance.

b. Consider filing a Type III complaint whenever an equipment vendor or manufacturer refuses to service their equipment or refuses to sell the Government required parts, tools, or service manuals.

c. Medical maintenance branches will assist in the completion of appropriate actions with hospital staff to meet the requirements of the Safe Medical Devices Act (SMDA) of 1990.

2-9. Modification, alteration, and fabrication of medical equipment.

a. Modification and alteration of medical equipment will be IAW AR 750-1.

b. Forward suggested modifications directly to the commodity manager IAW MACOM regulations. Local commanders will not implement a suggested modification until the suggestion is reviewed and approved by the AMEDD National Maintenance Point (NMP).

c. Medical maintenance activities will not modify equipment that results in the equipment being altered to perform a function not designed or advertised by the original equipment manufacturer (OEM) (example: modifying a hardware tool cart into a crash cart)

d. Medical activities will not fabricate, without prior approval, any item of medical equipment, or component to be used on existing medical equipment. Forward requests for approval, based on unique one-time requirements, to AMEDD NMP.

2-10. Space requirements for medical equipment maintenance.

a. Space requirements for medical equipment maintenance activities included in appendix B are based on the Department of Defense (DOD) Space Planning Criteria dated 15 October 1991.

b Consider this planning data for use as a guideline in evaluating existing maintenance support facilities. By itself, it is not justification for establishing additional requirements for space or for reducing present space available. It does provide a valuable analysis of today's in-house space requirements needed for supporting the present complex medical instrumentation and equipment service program within a medical facility. The allocation of adequate space for equipment maintenance functions is essential in sustaining an effective Army medical healthcare program.

2-11. Planning local medical equipment purchases.

Maintenance managers should consider the following when involved in the planning for local purchase of medical equipment:

a. Are there maintenance justifications for replacement? Review and comment on all Capital Expense Equipment Program (CEEP) and Medical Care Support Equipment (MEDCASE) requirements.

b. Ensure maintenance input when the specifications are being developed for contract purchase. The following are examples of statements that detail the contractor's responsibility:

(1) Provide operator and service literature IAW NFPA 99. Purchase orders for medical equipment will specify the requirement for two sets of operator and at least one set of maintenance manuals.

(2) Ensure compatibility with existing equipment.

(3) Sell the Government all repair parts and special tools and TMDE required to maintain the equipment. You may want to request a listing of the special tools and TMDE and their associated costs.

(4) Provide service training courses to the Government when requested.

(5) Install and/or initially set up the equipment or system. This may include interconnection of electrical and mechanical equipment and components, connection to utility service outlets, calibration, and performance testing.

c Review all specifications ensuring such things as:

(1) Stated voltages and frequencies are accurate.

(2) Supply of an uninterruptible power system (UPS) when applicable.

(3) Defined battery pack minimum operating hours.

(4) Adequate copies of operator and maintenance literature.

d The facility engineer is responsible for building and utility alterations.

(1) Where alterations are necessary, coordinate with the facility engineer to ensure completion of facility alterations before receipt of equipment.

(2) For x-ray systems, an alternative is the use of extended installation. Include the price of the extended installation in the total purchase cost on the MEDCASE Program Requirement (MPR). (The glossary contains a definition for extended installation.)

e When writing specification for installation consider the following where applicable:

(1) Floor load bearing capacity.

(2) Ceiling height and strength.

(3) Wall and floor construction (i.e., concrete, wood, etc.).

(4) Capacity and location of utility outlets (electric, steam, water, compressed air, drain, etc.).

(5) Providing a diagram of the room, indicating dimensions, doorways, windows, obstructions, room number, and building.

(6) Requiring contractor performance of preliminary site inspection or removal of old equipment.

(7) Calibration and testing to ensure proper operation of equipment.

Section II. WORKLOAD CONTROL

2-12. Scheduling and deferring maintenance.

a When AMEDDPAS produces the Monthly Scheduled Services Work Order Listing, make a decision as to what scheduled services will be performed with the resources available during the scheduled month.

(1) Consider services on all high priority (critical or lifesaving) equipment first.

(2) Complete additional services based on the significance of the SMAC, the type equipment in the SMAC, or other managerial decisions.

(3) Identify the items of equipment to be serviced on the Monthly Scheduled Service Work Order Listing before it is given to a MER.

b Personnel shortages or other requirements may reduce the man-hours available to perform scheduled services, resulting in a need to defer some services.

c When deferring and not completing any portion of a month's scheduled services, explain the reason on the last page of the automated Scheduled Monthly Work Order Listing. The senior maintenance manager will sign this page, validating the reason. **EXCEPTIONS:** Items assigned an action code of "IR," "IU," or "NL."

2-13. Equipment priorities.

a. The complexity and ever-increasing density of medical equipment and the availability of maintenance resources require maintenance managers to establish priorities for the repair and/or performance of maintenance services.

b. Consider informing the chief of each department as to the priorities assigned to their equipment. A copy of the SMAC density list will provide this information.

c. Establish priorities as follows:

(1) Evaluate the significance of each SMAC to the overall delivery of medical care.

(a) Consider the nature of the SMAC, its location, and the type of medical care delivered.

(b) Consider a basic priority for each SMAC before evaluating the equipment in the SMAC.

(c) For SMACs that pertain to critical care areas (i.e., OR, ER, ICU/CCU, etc.), consider assignment of a higher priority than for those areas where life is not immediately endangered.

(2) Once the determination is made of the basic priority for each SMAC, identify critical or lifesaving equipment within that SMAC. Consider the following:

(a) Carefully establishing the criteria for selecting critical lifesaving equipment.

(b) Assigning a single priority to each type of equipment selected, i.e., all defibrillators receive a priority of "03" regardless of their assigned SMAC.

d. After selection and assignment of the priorities for critical or lifesaving equipment, assign the basic priority previously selected for the SMAC to all remaining equipment.

e. The priority system is a management tool used when scheduling workload or deferring maintenance due to shortages in resources. Consider other factors such as the following when determining the priority to be assigned to a SMAC or individual equipment.

(1) Establish a limited number of priorities within the SMAC. Excessive priorities may confuse and hinder the scheduling of services.

(2) Reserve selected priorities for special use. Consider other equipment items that could be grouped by priority for ease of identification and management.

(a) Give all dental equipment the same reserved priority and/or each dental clinic SMAC a separate priority. In these cases, priorities used for dental clinics would not be used for any other equipment or SMACs.

(b) Assign the same priority to all equipment located at a satellite (non-property book) activity. The priority assigned should not be used for any other activity or equipment.

2-14. Scheduled services base dates.

a. Assign base dates to every item of equipment coded as a subsystem "B" and for group managed "Z" MMCNs.

b. Assign a base date scheduling the performance of PMCS, CVC, and safety depending on applicability.

c. Base dates for a given SMAC should all be the same except when doing so would result in a scheduled month having more requirements for man-hours than would normally be available. Scheduling all 25 of your x-rays in the radiology clinic to be calibrated during the same month would not be advisable.

2-15. Scheduled services summary.

a. The scheduled services summary is a locally produced AMEDDPAS report. It summarizes work center man-hours required to perform scheduled services by in-house personnel.

b. Listed data is by month, equipment type, service required, estimated man-hours to complete the service, and gives an annual summary of the total man-hours by month.

c. Review the summary periodically to ensure that each month has been scheduled with a balanced man-hour requirement. Consider scheduling fewer services during June, July, and December to allow MERs to take leave and holiday breaks.

Section III. FORMS AND RECORDS MANAGEMENT

2-16. General.

a. Medical maintenance activities use AMEDDPAS as a DA standard multi-command management information system (STAMMIS) to manage their medical equipment. DA Pamphlet (Pam) 738-750 is for manual operations; therefore, not applicable.

b. AR 25-30, chapter 3, prohibits the creation of a form for a purpose for which a higher echelon form exists. Maintenance activities will use existing DA, DOD, and Food and Drug Administration (FDA) forms and labels.

c. Maintenance activities will not maintain individual historical records for supported (non-property book) activities. Medical maintenance activities will furnish these activities a legible copy of completed maintenance requests for posting to their historical records.

2-17. Equipment maintenance log, DA Form 2409.

Use DA Form 2409 (Equipment Maintenance Log Consolidated) to document services performed on medical equipment in support of operational projects.

2-18. AMEDDPAS outputs.

a. The AMEDDPAS Users Manual contains retention and disposition instructions for AMEDDPAS outputs. Provided below are additional instructions:

(1) Most AMEDDPAS maintenance outputs require that only the most recent copies be maintained and used as a reference. This is due to data elements in the database constantly being updated. Using an old copy or outdated copy will cause unnecessary errors for subsequent transactions.

(2) Consider maintaining one copy of each superseded report or output as a backup. This will allow a historical audit record in the remote chance that a system error occurs which damages your database.

b. Maintenance managers will ensure that copies of the latest AMEDDPAS outputs, applicable to equipment maintenance management, are on hand and available to maintenance personnel.

c. Request the Repetitive Maintenance Report as needed, especially as changes occur (i.e., additions, deletions, MMCN, serial numbers, etc.).

d. Reconcile the work order register at least monthly. Physically account for all maintenance requests on the register and establish AMEDDPAS entries for those work orders on hand and not on the register.

2-19. Maintenance requests.

a. Complete a maintenance request for each scheduled, unscheduled, and ancillary work performed by personnel assigned to the maintenance activity as direct labor.

b. Medical maintenance activities are authorized to use a manual DA Form 2407 (Maintenance Request) or other MACOM forms. Use of an automated maintenance request is highly encouraged.

c. Complete maintenance requests IAW TB 38-750-2, this bulletin, and local procedures.

d. Use the date the MER begins the repair as the start date on the work order. The assignment of a work order to an MER by placing it in their designated box, does not constitute the assignment of a repair "start date."

e. Maintenance branches will keep copy number 2 of DA Form 2407, or the appropriate copy of MACOM forms for 1 year following the close date. **EXCEPTION:** A locally approved paperless archive system is in place in the maintenance shop that allows for random access to any work order and the subsequent printing of that work order.

Section IV. SHOP SAFETY

2-20. Shop safety procedures.

Each maintenance activity will practice safe operating procedures, ensuring a safe environment for the repairer. Important points of shop safety are:

a. Following general safety procedures as outlined by AR 385-10, MACOM directives, and the activity safety program.

b. Prevention of electrical shock by noting and labeling hazards and following safe repair procedures.

c. Following safe handling and disposal rules for items containing radioactive or toxic material.

d. Being knowledgeable of fire protection rules, plans, and evacuation routes.

e. Ensuring compliance with the activities respiratory protection program while performing any task where the use or production of toxic materials, fumes, or mists occur.

f. Making available those items of occupational foot protection and protective clothing authorized by common table of allowance (CTA) 50-900.

g. Following radiation health protection procedures as outlined by AR 40-14.

h. Preventing eye and skin injuries by noting and labeling hazards and using protective devices. Optical sources such as arc lamps (mercury, xenon, etc.), lamps with quartz envelopes (since they can emit ultraviolet rays), infrared and germicidal lamps, welding arcs, and lasers can pose a hazard.

i. Complying with microwave radiation procedures as outlined in TB MED 523.

j. Complying with lockout/tagout procedures IAW OSHA Regulation 29 CFR, Part 1910, Control of Hazardous Energy Sources (Lockout/Tagout).

CHAPTER 3

MAINTENANCE PROGRAMS

Section I. GENERAL EQUIPMENT PROGRAMS

3-1. Medical Standby Equipment Program (MEDSTEP).

a. Commanders with a medical equipment maintenance mission are authorized to establish MEDSTEP assets.

b. MEDSTEP assets will:

(1) Be mission essential to the using unit or activity.

(2) Not be used to fill equipment shortages, replace uneconomically repairable items, expand operational missions, or satisfy temporary loan requirements. The Commander may authorize exceptions under emergency or unique conditions.

(3) Not normally duplicate those located at United States Army Medical Materiel Agency (USAMMA) Medical Maintenance Operations Divisions.

(4) Be accounted for on the activity's property book.

(5) Be physically located in the maintenance activity according to established hand receipt procedures.

(6) Be included in the AMEDDPAS database as subsystem "B" and assigned to AMEDDPAS local use report 3 level 1. Local use report 3 level 1 will only contain MEDSTEP assets.

c. Initiate a DA Form 3318 (Records of Demands - Title Insert) for each MEDSTEP asset. Annotate all work request numbers in the user column of the DA Form 3318. This data will establish justification for the maintenance activity owning medical equipment when they are not a clinical activity.

3-2. Medical Materiel Benefits Program (MMBP).

a. Schedule MMBP equipment for annual services unless the manufacturer specifies a more frequent interval.

b. Document all scheduled services using the AMEDDPAS.

(1) Code all technical MMBP equipment as subsystem "B." Nontechnical equipment (wheelchairs, nebulizers, walkers, etc.) may be group managed under the SMAC assigned for the MMBP.

(2) Consider placing all MMBP equipment into the same SMAC.

c. Before release to a beneficiary, handle MMBP equipment in the following manner.

(1) The MMBP manager will route the equipment through the supporting medical maintenance facility.

(2) Medical maintenance activities will perform all necessary scheduled services to ensure that the equipment is in the highest possible state of operational readiness. **EXCEPTION 1:** Technical equipment may be released without being serviced if the equipment received all necessary scheduled services within 15 days prior to release to a beneficiary. The MMBP manager is responsible for ensuring operator PMCS is performed prior to release. **EXCEPTION 2:** Nontechnical equipment may be released without being serviced by medical maintenance if the MMBP manager ensures operator PMCS is performed prior to release.

(3) Medical maintenance activities will record the completed scheduled services in the AMEDDPAS database and adjust the scheduled services base dates for subsystem "B" equipment forward 1 year.

d. When the MMBP beneficiary no longer requires the equipment and turns it back into the MMBP, handle the equipment in the following manner.

(1) The MMBP manager will send the equipment to the medical maintenance activity for service.

(2) The medical maintenance activity will perform all required scheduled services plus any needed repairs.

(3) The medical maintenance activity will record the completed scheduled services in the AMEDDPAS database. Consider adjusting the scheduled services base dates forward 1 year on subsystem "B" equipment.

e. If the MMBP beneficiary retains the equipment for 11 months or longer, AMEDDPAS will produce an automated scheduled work order indicating the need for periodic scheduled services.

(1) The maintenance manager should notify the MMBP manager who, in turn, will notify the MMBP beneficiary of the required service.

(2) The MMBP manager will request that the beneficiary bring the equipment to medical maintenance for the required service if the equipment is portable.

(3) The maintenance manager will arrange to service MMBP equipment on-site when the equipment's size precludes transportation of the equipment to the medical maintenance activity by the beneficiary.

(a) Consider the use of commercial contracting, as an alternate source of maintenance support, when excessive distance precludes the economic use of in-house maintenance personnel.

(b) Use AMEDDPAS to schedule the required services and document their completion if contractor support is routinely used.

f. The AMEDDPAS automated MMBP hand receipt incorporates a statement informing the MMBP beneficiary of his/her responsibility for obtaining maintenance services. The statement includes the frequency for scheduled services and the date of the next required scheduled service. Maintenance managers must work closely with MMBP managers to ensure that MMBP beneficiaries are informed of how and when maintenance services are acquired.

g. Maintenance managers will incorporate the above procedures into their internal and external standing operating procedures.

3-3. Mobilization medical equipment.

a. AR 40-61, chapter 9, outlines policies and gives procedural guidance relative to the storage, inspection, and maintenance of mobilization medical materiel.

b. Perform all required scheduled services (PMCS, safety, CVC) before placing equipment in use and when initially placed in mobilization storage.

c. Consider conducting surveillance in conjunction with other logistic personnel of medical equipment located in operational projects IAW TB MED 1, TB 740-10, and manufacturer's literature.

d. Mobilization medical equipment in depot level "A" pack (sealed container) or locally packed to the requirements for in-place storage will not be disturbed to perform periodic maintenance services. Inspect and/or test materiel packed in depot level "A" IAW TB 740-10 and TB MED 1.

e. Perform surveillance of operational projects equipment either annually or semiannually depending on the type of packaging.

(1) Medical equipment in level "A" pack will receive a surveillance inspection annually.

(2) Perform surveillance of medical equipment not in level "A" pack at 6-month intervals, and perform serviceability and performance tests (TIs) at annual intervals.

(3) AR 700-15 contains the considerations used in determining the level of protection (A, B, C).

f. Initiate and maintain a DA Form 2409 for all technical medical equipment. Maintain the DA Forms 2409 at the supporting medical maintenance activity.

(1) Complete entries on the form in blue or black ink unless otherwise stated.

(a) Frequency of maintenance inspection. Annotate the "Frequency of Maintenance Inspection" block with the appropriate surveillance interval of "A" (Annual) or "S" (Semiannual). An annual requirement will indicate that the equipment is in level "A" pack. Complete this entry in pencil.

(b) Level "A" pack. Annotate the completion of the annual surveillance in the remarks block of section "B" with "Surveillance."

(c) Other than level "A" pack. Annotate the completion of the semiannual surveillance in the remarks block of Section "B" with "Surveillance" and the completion of the annual serviceability and performance test with "TI."

(2) Annotate DA Form 2409, section A, with all accurate information when equipment in level "A" pack is placed in service.

g. Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to maintain documentation of required repair services discovered during surveillance. This will preclude open maintenance requests for extended periods.

3-4. Joint Commission on Accreditation of Healthcare Organizations.

a. JCAHO surveyors use Environment of Care Standards from the Accreditation Manual for Hospitals to evaluate the operation of the medical treatment facility's (MTF's) maintenance program.

b. Appendix E contains the pertinent paragraphs from the JCAHO manual dealing with equipment management. Also included is an explanation of how the existing systems will satisfy the JCAHO requirements, or what local medical maintenance activities are required to accomplish to ensure compliance.

3-5. College of American Pathologists.

a. The CAP has determined that the computerized individual historical maintenance records provided by AMEDDPAS do not have sufficient information to meet their standard. The quoted standard is in the Inspection Checklist Section III-A, Clinical Chemistry, CAP, Commission on Laboratory Accreditation.

b. Maintenance managers will establish procedures to provide a legible copy of each completed maintenance transaction (scheduled or unscheduled) for laboratory equipment to a designated laboratory representative.

c. Laboratory personnel are responsible for maintaining all completed maintenance transactions for instruments within the laboratory.

d. The medical maintenance activity will provide a copy of all service reports to the laboratory's designated personnel when maintenance services are performed by a contractor or manufacturer.

e. The CAP considers the failure to comply with the above to be a "Phase II" major deficiency. These must be corrected before accreditation can be granted.

3-6. Equipment demonstrations, examinations, or evaluations.

a. Equipment brought into an MTF for an equipment demonstration, examination, or evaluation before possible procurement will comply with the requirements of AR 40-61.

b. The supporting Medical Maintenance Branch will inspect equipment intended for use on or by patients or staff before such use.

Section II. SPECIFIC EQUIPMENT PROGRAMS

3-7. Medical maintenance responsibility for computer maintenance.

a. Supply bulletin (SB) 8-75-MEDCASE defines categories of Information Mission Area Equipment (IMAE) as follows.

(1) *Embedded IMAE.*

(a) Embedded IMAE is an integral part of an item of clinical equipment.

(b) It is either built-in or attached, and its absence will render the equipment inoperable for the intended clinical use.

(c) This does not apply to the upgrade or automating of existing clinical equipment (see enhancing IMAE below).

(d) Embedded IMAE requires no separate information mission area (IMA) approval (AR 25-1) other than the signature of the activity Information Management Office (IMO) on the MEDCASE Support Transmittal Form (MSTF).

(2) *Enhancing IMAE.*

(a) Enhancing IMAE either enhances or improves the capability of an item of clinical equipment, but is not required for its intended clinical use.

(b) Enhancing IMAE that is acquired as part of the initial MPR for the clinical equipment does not require separate IMA approval.

(c) Enhancing IMAE acquired subsequent to, or separately from, the acquisition of the clinical equipment does not require IMA approval under the provisions of AR 25-1.

(3) *Supplemental IMAE.*

(a) Supplemental IMAE is all other IMAE used to support the operation or mission of a medical activity.

(b) Supplemental IMAE is generally not physically connected to any non-IMAE equipment.

(c) Supplemental IMAE requires documentation of IMA approval under the provisions AR 25-1, as well as TDA authorization and type-classification exemption.

b. The medical maintenance activity is normally responsible for the maintenance of the computer when the computer is built into the item of medical equipment, or the only commercial source of maintenance is a medical equipment vendor.

(1) In most instances, the original computer vendor and other computer maintenance vendors cannot or will not maintain such computers.

(2) Computer vendors would not attempt to maintain these computers because the vendor would require special knowledge of the modifications and/or how the computer interacts with the item of medical equipment.

c. The guidance below is to assist in determining if the maintenance of a computer is the responsibility of the medical maintenance activity. Do not use these guidelines as the sole criteria for a decision. Consider local conditions, the actual application of the computer, and the normal commercial source of maintenance, i.e., medical equipment vendor or computer equipment vendor.

d. The Medical Maintenance Branch is responsible for the maintenance of the computer if all the conditions below apply:

(1) The computer is embedded IMAE.

(2) The computer serves as the output device for the medical equipment, but not solely for information storage.

(3) The computer controls or influences the operation or function of the medical equipment.

(4) The computer was furnished or procured as an integral portion of the medical equipment (embedded IMAE, or enhancing IMAE acquired as part of the initial MPR for the clinical equipment).

(5) Without the computer, the medical equipment cannot perform its primary function.

e. The computer is not the responsibility of the medical maintenance activity, if any of the below applies:

(1) It is a stand-alone computer.

(2) Is not physically connected to the medical equipment by interconnecting wires.

(3) Enhancing IMAE acquired subsequent to or separately from the acquisition of the clinical equipment requiring IMA approval.

(4) Is used solely to store patient information data for later retrieval and evaluation.

3-8. Defibrillator battery replacement.

a. It is essential that we take a proactive approach to maintaining critical items of medical equipment. A defibrillator is a lifesaving item of medical equipment; therefore, it must receive close attention.

b. Defibrillators may start malfunctioning, at or around the 24-month point, due to battery failure. To ensure that defibrillators function when needed, institute one of the following battery maintenance procedures.

(1) Remove batteries from the defibrillator and deep cycle semiannually using a medical battery conditioner and tester. Replace batteries every 36 months regardless of condition.

(2) Completely discharge the batteries semiannually by draining the battery through equipment operation and then fully recharge. Replace the batteries every 18 months regardless of condition.

c. The maintenance internal SOP will include one of the above procedures and the method used to identify the date of the last battery installation. Activities may use DA Form 2409 to track battery replacements.

Section III. WARRANTY/CONTRACT PROGRAM

3-9. Warranty management.

a. Use the Warranty Reports produced by AMEDDPAS for subsystem "A" and "B" items of equipment to identify those items that are under warranty.

b. Exercising a warranty is a contracting responsibility. Almost all contracting officers have delegated this function to medical maintenance activities. However, the installation contracting officer must get involved if the manufacturer does not honor the warranty or if there is a problem with the contract.

c. Initiate procedures ensuring the appropriate vendor or manufacturer performs repairs of equipment under warranty. Do not ship equipment under warranty to a USAMMA's Medical Maintenance Operations Divisions for repair services.

d. Individual sections (e.g., wards, clinics, etc.) will not call directly to the manufacturer or vendor for warranty services unless coordinated through the supporting medical maintenance activity. The routing of warranty service requirements through the medical maintenance activity ensures verification of services required and subsequent administrative procedures associated with AMEDDPAS.

e. Post the performance of warranty services to AMEDDPAS as follows.

(1) Use screen RPBMA-SO1 and action code "RW" to document each warranty service. The system automatically enters a TECH-CD of "RW."

(2) Initiate a second work order when posting in-house MER man-hours and repair part costs. Post to the "Special Service" section of the equipment history using action code "SS."

3-10. Warranty file.

a. Establish a separate warranty/guarantee file for each item of equipment and maintain the file through the entire warranty period. Establish and maintain warranty files IAW AR 25-400-2 using Modern Army Recordkeeping System (MARKS) file number 738.

(1) Consider grouping short term warranties (less than 1 year) in a single file. If extensive warranty services are being required, consider establishing a separate file for that item.

(2) Maintain extended term warranties (1 year or greater) in separate files for the duration of their warranty period. Consider placing like items received at the same time in the same warranty file.

b. Warranty files will include copies of the original purchase request, shipping documents, proof of initial TI, and all warranty service reports resulting from services provided.

c. These files provide a management tool used to identify maintenance problem areas, trends, etc.

d. The Radiation Protection Program File (RPPF) will serve as the warranty file for x-ray equipment.

3-11. Warranty repair response time for x-ray systems.

a. Contracts for Defense Personnel Support Center (DPSC) procured diagnostic x-ray systems within the Continental United States (CONUS) require manufacturers to respond on-site within 24 hours after notification.

b. Annotate the failure of the manufacturer to meet this requirement on the quarterly performance reports submitted to the Defense Personnel Support Center, ATTN: DPSC-RX.

c. Bring repeated failures of the manufacturer to respond within the above time to the attention of DPSC and the AMEDD NMP.

3-12. Contract management.

a. It is critical that there be a certified contracting officer representative (COR) in all medical maintenance activities. The contracting activity appoints in writing the person designated for this function. The contracting activity should consider appointing a COR within the Medical Maintenance Branch for all annual service contracts.

b. Contracts to repair equipment not covered by an annual service contract are traditionally called one-time unpriced purchase requests. These repair services relate to inoperative equipment that often must be "torn down" to determine the problem. Therefore, it is not practical to price such work in advance. When requirements exist for this type of contract, the requesting medical maintenance activity should forward a DA Form 3953 (Purchase Request and Commitment) or a memorandum when using the IMPAC credit card with at least the following:

(1) Statement of Work (SOW) to be performed.

(2) Description of equipment and operational deficiencies.

(3) Urgency of the repair.

(4) "Not-to-exceed" repair cost.

c. AR 750-1 requires contractors to furnish an itemized list of labor and parts cost for services performed. However, the contractor has no obligation to provide this information when the specifications in the government contract aren't specific. This information is necessary to record pertinent data on the applicable automated historical record.

d. Each request for services should include statements similar to the following:

(1) *Repair and Return.* "Upon completion of services, a written service report shall accompany the equipment being returned. The service report shall provide detailed information regarding the cause of equipment malfunction and corrective action taken. Include at a minimum the time required to complete the work, price of labor (hourly rate), and a list of parts replaced with prices for each part."

(2) *On-Site Repairs.*

(a) "Contractor's representative shall report or telephonically notify the medical equipment maintenance manager, Building No. _____, (MTF), Telephone No. _____, prior to commencing services during normal operating hours (state duty hours). During other than normal operating hours, the contractor's representative shall report to the Administrative Officer of the Day (AOD), Building No. _____, (MTF)."

(b) "The Government and the contractor will exchange hazard communication information before the commencement of any repair."

(c) "When required, the contractor will comply with the OSHA lockout/tagout standard while performing maintenance on electrical equipment."

(d) "Upon completion of services, a written service report shall be provided to the medical maintenance manager or AOD. The service report shall provide detailed information regarding the cause of equipment malfunction and corrective action taken. Include at a minimum the time required to complete the work, price of labor (hourly rate), and a list of parts replaced with prices for each part."

(e) In the event all information is not available to the contractor's representative when services are performed, the initial service report shall include all available information. The contractor shall provide the balance of the required information to the Chief, Medical Maintenance Branch, no later than 10 days after services are completed.

e. Don't confuse the service report with the contractor's responsibility to submit an invoice or billing to the contracting officer containing a list of replacement parts, labor hours, etc. This invoice or bill must be certified by the contracting personnel that the price is fair and reasonable prior to being sent to finance for payment.

f. Document the performance of contractual services as follows:

(1) Document unscheduled services performed under an annual or one-time service contract by using AMEDDPAS action code "RC," tech code "RC," and the contractor's hourly rate and parts cost. Maintain service reports provided by the contractor in the contract file. They provide contractor performance documentation.

(2) Input scheduled services performed under an annual service contract using the system generated scheduled service transactions on screen RPBMB-SO1. Use an unscheduled work order transaction, with the applicable action code, when performance of scheduled services by the contractor occurs at an interval other than what was scheduled.

3-13. Contract files.

a. Maintain a file pertaining to each annual service contract IAW AR 25-400-2 (MARKS file number 738). Include all documents pertaining to the contract or the contractor's performance of scheduled and/or unscheduled services.

b. Maintain contract files for the life of the contract, including extensions to the contract.

c. Consider maintaining only one contract file when the contract pertains to multiple equipment items. **EXCEPTION:** x-ray systems.

d. Use the permanent RPPF required by AR 25-400-2 (MARKS file number 738-750i) for x-ray systems as the contract file.

e. Include a copy of the economic analysis for each contract in the file.

CHAPTER 4

MAN-HOUR ACCOUNTING

Section I. GENERAL INFORMATION

4-1. General.

a. Work center supervisors are vital to the operation of the time accounting system. They are responsible for adherence to the reporting system and for the accuracy of all information submitted by the work center. The supervisor must be familiar with all aspects of man-hour accounting.

b. Man-hour accounting provides a uniform system of maximum accuracy to identify and account for the utilization of all duty hours for each person, military and civilian, assigned to medical maintenance activities.

4-2. Use of direct labor worksheet.

a. Use the Individual Direct Labor Man-hours Worksheet or an equivalent method to capture man-hours expended by assigned personnel.

b. Maintenance managers will ensure that all direct labor personnel are familiar with and understand these instructions.

c. A direct labor worksheet and instructions for completing the worksheet are provided in figures 4-1 and 4-2.

Section II. PREPARATION OF REPORT

4-3. Monthly maintenance performance report.

a. The MMPR is generated on the 15th of each month or in the first batch cycle thereafter for all established work centers. Data for the report is compiled by the system from transactions processed during the report month.

b. Medical maintenance activities will maintain the original of the authenticated MMPR as directed by MACOMs.

(1) Properly authenticated reports will have the signatures of the Director of Logistics/Chief, Logistics Division and the Chief, Medical Maintenance Branch.

(2) Reports for separate work centers and work centers located at health clinics will be authenticated by the senior maintenance manager assigned to the work center and that individual's rater.

c. Additional information about the MMPR is provided in appendix F.

4-4. Work unit - jobs completed.

a. The work unit count "jobs completed" has been subject to wide interpretation in the past. The work unit does not provide for the separate counting of simple versus complex repair. Elements of a repair include:

(1) Initial inspection.

(2) Disassembly (when required).

(3) Troubleshooting.

(4) Repairing the fault.

(5) Reassembly.

(6) Safety testing and calibration (when required).

(7) Final testing and inspection.

INDIVIDUAL DIRECT LABOR MAN-HOURS WORKSHEET

NAME: _____ Entered By: _____ DATE: _____

REPORT MONTH: _____ WCC: _____ TECH CD _____

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Totals
1	Assigned Hours																																
2	Overtime Hours																																
3	Borrowed Hours																																
4	Loaned Hours																																
5	Nonproductive Hours																																
6	Productive - Indirect																																
7	Duty Aosence																																
8	Non-Duty Absence																																
9	Travel Time																																
	Ancillary Services																																
10	MEDCASE																																
11	Miscellaneous																																
12																																	
13																																	
14																																	
15																																	
16																																	

Figure 4-1. Individual direct labor man-hours worksheet.

INSTRUCTIONS FOR PREPARING THE INDIVIDUAL DIRECT LABOR MAN-HOURS WORKSHEET

Line 1 **ASSIGNED HOURS** - 8 Hours per normal working day (Monday thru Friday) 5 days per week less holidays.

Line 2 **OVERTIME HOURS** - Man-hours expended in excess of the normal 8 hours per day

Line 3 **BORROWED HOURS** - Hours borrowed from another work center or source

Line 4 **LOANED HOURS** - Man-hours loaned outside the basic work center to another work center, or loaned to indirect labor.

Line 5 **Nonproductive:**

- Lag - Awaiting Assistance
- Lag - Awaiting Equipment, Tools, etc.
- Lag - Awaiting Transportation
- Lag - Weather
- Lag - Parts
- Lag - Break

Line 6 **Productive Indirect Labor:**

- Alert Duty
- Maintenance On-Installation Tech Training
- Maintenance Meeting
- Plant/Equipment Maintanance and Clean-up
- Cleaning and Policing

Line 7 **Duty Absence:**

- Military Training
- Organizational or Installation Duties
- TDY - Training
- Personnel Processing

Line 8 **Non-Duty Absence:**

- Compensatory Time Off
- Excused from Duty (Pass)
- Leave - Official
- Sick Leave - Civilian
- Medical Absence (Sick Call, Hospital, etc.)
- Personal Affairs
- AWOL, LWOP
- Job Related Injury

Line 9 **Travel:** - Time expended traveling to and from maintenance jobs. Time traveling to, from, or between jobs which exceeds three-tenths (3/10) of an hour will be documented on this line. Travel which takes three-tenths of an hour or less will be charged to the job (work order). Time spent awaiting transportation will be charged to nonproductive labor (Line 5).

Line 10 **MEDCASE** - Man-hours expended in support of MEDCASE Projects

Line 11 **MISCELLANEOUS** - All other documented direct labor man-hours expended but not otherwise mentioned.

Figure 4-2. Instructions for preparing the individual direct labor man-hours worksheet.

b An expanded definition of the work unit "job completed" is as follows:

(1) Adjustment or replacement of defective parts, components assemblies, sub-assemblies, or any action necessary to restore an end item to perform all functions for which it was designed. This includes all the elements of repair as stated as above.

(2) Actions taken to disassemble, repair, and reassemble, whether accomplished in one work center or several, contribute to the repair of one end item and will receive a total work unit count of one.

(3) When equipment is in repair and the required scheduled services were missed, consider opening a separate work order to document the services (PMCS, safety, CVC) that were performed. Maintenance managers will ensure the time expended performing scheduled services is not duplicated on the repair work order.

4-5. Ancillary services.

a Document ancillary services that require utilization of direct labor personnel on a maintenance request form. Do not assign a work order number to the request. Annotate Block 7 of the request with the word "ANCILLARY."

b File a legible copy of ancillary work orders separately for each report period, maintain for 1 year, and then destroy.

c Input ancillary man-hours each report month using AMEDDPAS screen RPBMI-SO1.

d. Ancillary services include direct labor man-hours expended on:

(1) MEDCASE projects.

(2) Miscellaneous work (defined in the direct labor worksheet).

4-6. Labor rates.

a Commanders will establish and use standard hourly rates for direct labor. A worksheet is provided in figure 4-3 to calculate the standard labor rate for each work center code. Expand the worksheet as needed to accommodate your authorized personnel by grade.

b Computing the standard labor rate should be a joint effort of the resource manager and medical maintenance staff.

c Base computations on personnel authorizations, not on TDA requirements or on-hand personnel.

d. Use step level 3 when computing the salary for authorized civilian spaces that are vacant.

e The standard labor rate requires revision when:

(1) Prices, methods, personnel authorizations, salaries, or other factors have changed to such an extent that the standard rate no longer represents a true measure of performance.

(2) Use the published Army Composite Standard Rates.

f Review the standard labor rate semiannually and make changes when warranted. Input revised labor rates to AMEDDPAS using the screen RPBMN-SO1 when:

(1) The newly computed standard hourly rate fluctuates plus or minus one dollar from the current rate.

(2) A new composite rate for personnel services is received (normally annually) regardless of what the new hourly rate may be.

MEDICAL MAINTENANCE LABOR RATE
COMPUTATION WORKSHEET

Activity _____ Date _____

1. Computation: Computation will be based on TDA personnel authorizations. Cost for military labor is based on the most recent DA Message, Subject: Composite Standard Rates for Costing Military Personnel Services. Cost for civilian labor is the actual salary multiplied by a factor of 1.29 for government contributed fringe benefits.

2. Direct Labor Hours/Cost: "Hands on," "touch" personnel; i.e., personnel who actually come into direct productive contact with the service or item involved. Average annual productive working hours for military and civilian is 1768 annually.

a. No. of military + No. of civilians X 1768 productive hours = Total Direct Labor Hours

_____ Mil + _____ Civ X 1768 hours = _____ Total Direct Labor hours

b. Direct Labor Costs:

(1) Military

Grade	Number	X	Annual Mil Comp Standard Rate	=	Cost Total
_____	_____	X	_____	=	$ _____

Total Military Direct Labor Cost = $ _____

(2) Civilian

Grade	Number	X	Salary	X	Benefits	=	Cost Total
_____	_____	X	_____	X	1.29	=	$ _____

Total Civilian Direct Labor Cost = $ _____

c. Total Direct Labor Cost (Total 2b(1) + Total 2b(2)) = $ _____

d. Direct Standard Labor Rate

(Total Direct Labor Cost, Item 2c above ÷ Total Direct Labor Hours, Item 2a above.) = $ _____ Standard Labor Rate.

Figure 4-3. Medical maintenance labor rate computation worksheet.

3. Indirect Labor Cost: (Consists of civilian and military personnel that perform supervisory, administrative, logistics, and reliability functions directly associated with the maintenance support process.)

a. Military

Grade	Number		Annual Mil Comp Standard Rate		Cost Total
		X		=	$

Total Military Indirect Labor Cost = $

b. Civilian

Grade	Number		Salary		Benefits	=	Cost Total
		X		X	1.29	=	$

Total Civilian Indirect Labor Cost = $

c. Total Indirect Labor Cost (3a + 3b) = $

d. Indirect Standard Labor Rate

(Total Indirect Labor Cost, Item 3c above ÷ Total Direct Labor Hours, Item 2a above.) = $ Standard Indirect Labor Rate.

4. Indirect/Overheaad Costs: Indirect overhead personnel outside work center who contribute to the maintenance mission in an indirect manner, e.g., if one GS-4 provides time and attendance and support and other administrative support estimated to occupy 8 percent of the employee's time, computation would be: 1 X Salary X 1.29 X .08 = $XXX

a. Military

Grade	Number		Annual Mil Comp Standard Rate		Percent	=	Cost Total
		X		X		=	$

Total Military Indirect/Overhead Cost $

b. Civilian

Grade	Number		Salary		Benefits		Percent	=	Cost Total
		X		X	1.29	X		=	$

Total Civilian Indirect/Overhead Cost = $

c. Total Indirect/Overhead Cost (4a + 4b) = $

Figure 4-3. Medical maintenance labor rate computation worksheet (continued).

d. Annual Nonreimbursable Base Operation Cost is based on square feet assigned to medical maintenance operations. Rates are derived from the UCA Report as follows:

(1) Electricity, Gas, Water, and Sewage from account ECB $ _____

(2) Fire Protection from account ECH $ _____

(3) Refuse Collection from account ECE $ _____

(4) Custodial Service from account ECF (inhouse) or EFB (contract) $ _____

(5) Total Annual Base Operation Cost $ _____

e. Annual Indirect Material Cost (The cost of all materials, parts, and operating supplies to include general and administrative supplies, which are not identified to a specific work order, e.g., bench stock, office supplies, paint, hardware, etc.)

$ _____

f. Total Indirect Overhead Cost (4c Total + 4d(5) Total + 4e Total)

$ _____

g. Indirect Overhead Standard Rate (4f ÷ Total Direct Labor Hours, Item 2a) $ _____

5. Standard Labor Rate (2d + 3d + 4g) $ _____

Figure 4-3. Medical maintenance labor rate computation worksheet (continued).

CHAPTER 5

REPAIR AND OVERHAUL EXPENDITURES

Section I. REPAIR ELIGIBILITY AND EVACUATION

5-1. Cost elements.

a. TB MED 7, chapter 3, contains the elements of cost to be identified to job orders and for use in estimating the cost of repair or overhaul, and non-chargeable materiel costs.

b. Include all required repairs in the cost estimate to prevent continued use of uneconomically reparable equipment. Do not defer or omit repairs to reduce the total estimated cost.

c. Do not charge the following elements of cost to an item of equipment as part of a repair (maintenance request), or when performing repair/overhaul cost estimates:

(1) The labor cost of applying modifications to eliminate hazardous or unsuitable conditions.

(2) Operating and user expense items; e.g., paper for electrocardiographs; electrodes for electrosurgical apparatuses; filters used on medical equipment; routine service items, etc.

(3) Preventive and periodic services to include calibration or verification of medical equipment.

(4) Man-hours involved in the TI and condition coding of medical equipment.

(5) Equipment installation.

(6) Replacement of components that are normally considered to be used-up during normal operation. To establish an audit trail, capture the elements of cost for these items in AMEDDPAS with an action code of "SS." These items include:

(a) X-ray tubes.

(b) Batteries, rechargeable or nonrechargeable (not from bench stock).

(c) Light bulbs (not from bench stock).

(d) Heat sealer heating elements (not from bench stock).

(e) Sieve beds and product tanks for oxygen concentrators.

(7) Dental handpieces.

(8) Bench stock.

5-2. Quality control procedures.

Medical maintenance activities will initiate quality control procedures to prevent the repairs of equipment declared:

a. Uneconomically reparable.

b. Professionally undesirable by the Defense Medical Standardization Board (DMSB).

c. Hazardous equipment marked "CONDEMNED-NOT FOR PATIENT CARE."

5-3. Responsibility of a Medical Equipment Repairer.

a. A basic function of quality control, and a primary responsibility of the MER, is inspection of materiel to determine repair eligibility.

(1) MERs are required to perform a TI to determine specific repair or overhaul requirements before repairs are started.

(2) Accomplish a mental condition coding before starting repairs.

b. The MER must be aware of the cost elements to be included when estimating the cost of repair/overhaul, or when condition coding equipment.

c. Do not include the cost of the items listed in this bulletin, paragraph 5-1c, in the determination of repair eligibility.

d. An important aspect in determining economic repairability of equipment is the MER's individual judgment. In the absence of valid historical data, the MER will completely inspect the item and use his/her best judgment in making the repairability determination.

5-4. Repair eligibility.

a. To assist in the decision process, use figure 5-1 to ensure that vital steps are not overlooked when determining repair eligibility of equipment.

b. Assuming the receipt of a maintenance request, use figure 5-1 to determine the equipment's repair eligibility.

5-5. Historical information.

Establish local procedures that ensure equipment historical records are available to the MER. These documents will allow the MER to make a determination as to repair eligibility. Basic historical data required by the MER are:

a. Date put in service.

b. Current unit price.

c. Life expectancy.

d. Cumulative repair cost (current expenditures to date).

e. Maintenance expenditure limit.

5-6. Appearance of medical equipment.

a. Medical equipment is an essential element of the healthcare delivery system. As such, it must operate effectively, and its appearance must reinforce and support the high military standards for patient care.

b. Consider equipment used in patient care or treatment areas for refurbishment or replacement if its appearance has deteriorated.

c. Include the costs associated with refinishing an item of medical equipment when determining the repair and/or overhaul cost estimate for the item.

5-7. Uneconomically reparable equipment.

Do not repair unserviceable, uneconomically reparable equipment without a waiver as required by AR 750-1, TB MED 7, and section III of this chapter.

5-8. Routing materiel through general support maintenance.

a. Medical maintenance activities evacuating unserviceable, reparable equipment to USAMMA's Medical Maintenance Operations Divisions will ensure that adequate packing and packaging methods are applied to prevent damage or loss.

b. End items evacuated to USAMMA's Medical Maintenance Operations Divisions for refurbishment, before lateral transfer, will include all major components and accessories required for the equipment to perform its designed functions (include operator and maintenance literature). It is not necessary to ship minor operating supply/expense items.

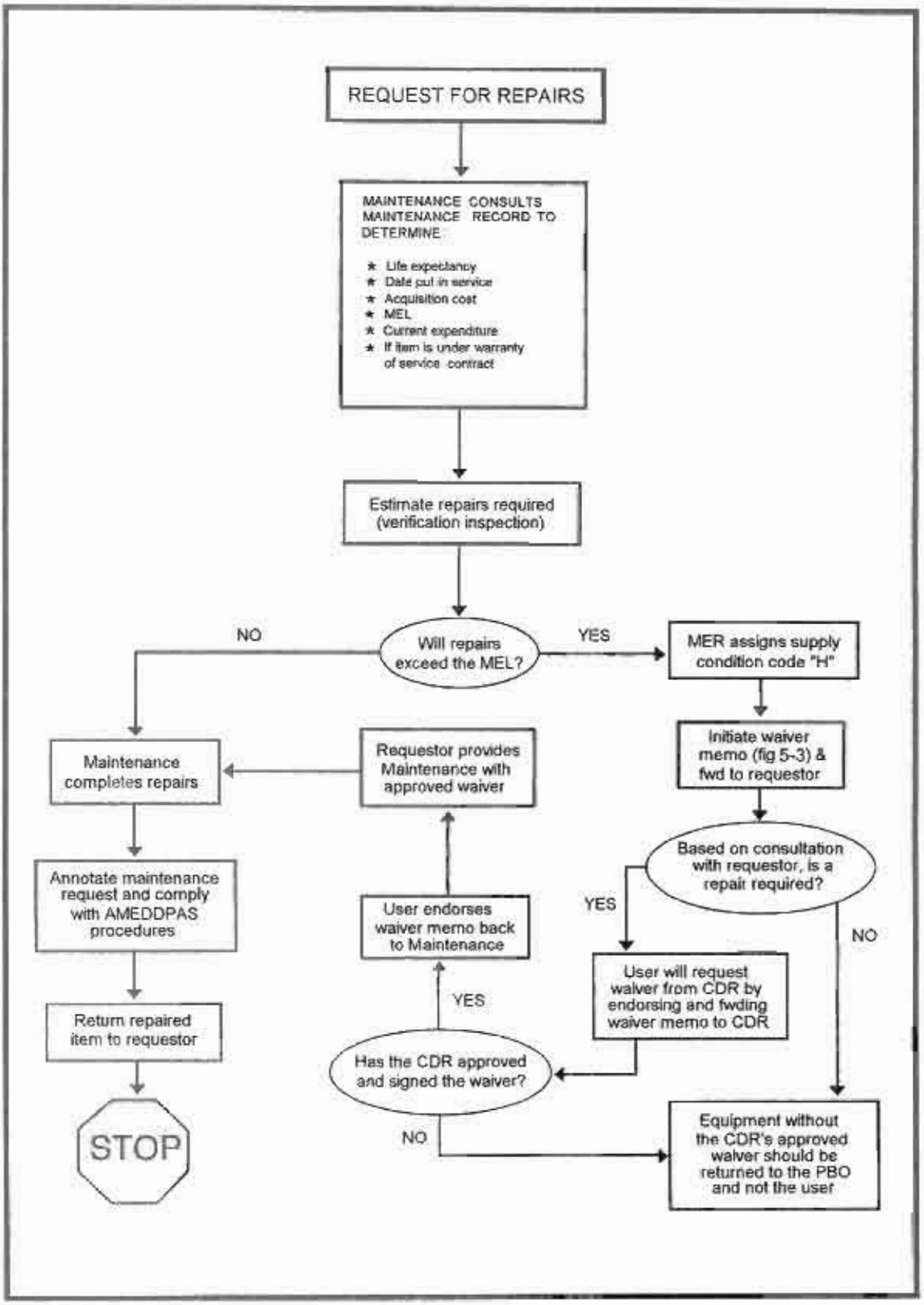


Figure 5-1. Decision matrix for condition coding maintenance requests for repair.

c. End items sent to USAMMA's Medical Maintenance Operations Divisions for "repair and return" will adhere to the special instructions required by USAMMA.

d. The medical maintenance activity will obtain a signature from the shipper when evacuating equipment to another activity.

Section II. MAINTENANCE EXPENDITURE LIMITS

5-9. General.

a. TB MED 7 contains guidance for determining MEL for medical materiel.

b. Subsequent paragraphs explain equipment repair eligibility and the requirement for determining the MEL.

c. Maintenance is not authorized when the estimated one-time cost of a repair or overhaul would exceed the MEL unless the servicing maintenance activity obtained a waiver IAW AR 750-1, TB MED 7, and this bulletin.

5-10. Indefinite life factors.

a. Use a factor of 90 percent of current acquisition price when computing the MEL on the following items, regardless of the item's age:

(1) X-ray tube assemblies.

(2) Dental and surgical handpieces.

(3) Fiberoptic scopes (flexible and rigid).

b. Use a factor of 80 percent of current acquisition price when computing the MEL on the following items, regardless of the item's age:

(1) Hospital furniture (nurses' desks, narcotics and/or medicine cabinets, tables, surgical stands, dental stools, etc.).

(2) Basic electrical, mechanical, or electro-mechanical materiel (mechanical beds, over-bed tables, gooseneck lamps, etc.).

(3) Items not listed in TB MED 7, appendix B.

5-11. Computing maintenance expenditure limits.

a. Use the MEL factor graph and the factor computation located in TB MED 7 to assist in determining whether unserviceable medical equipment is economically reparable.

(1) AMEDDPAS calculates the MEL for subsystem "B" equipment.

(2) Use TB MED 7 when manually calculating the MEL for medical equipment.

b. Computations of MEL are based on the current acquisition price of an item of medical equipment. The current acquisition price is:

(1) The current updated cost for a nonstandard item as reflected on the property book, or current commercial cost.

(2) The current updated cost for a standard item as reflected on the property book established in accordance with the Army Master Data File (AMDF).

NOTE

The AMEDDPAS updated current acquisition price is reflected on the property book as the "Unit Price."

c. MEL for medical equipment is a percentage of the current acquisition price based on life expectancy remaining.

d. The percentage of current acquisition price for medical equipment ranges from 65 percent to 10 percent for those items not having an indefinite life.

e. Medical equipment that has reached or exceeded its life expectancy will have a one-time repair limitation of 10 percent of the current unit price. This will remain constant as long as the equipment is in use, regardless of its age.

f. Do not include expenditures for the following when calculating the MEL:

(1) Scheduled services.

(2) Modifications.

(3) TIs.

(4) Warranty actions at no expense to the Government.

Section III. WAIVERS

5-12. Policies.

a. Existing policy and implementing instructions concerning one-time repair limitations are specific. Policy in this area consistently emphasizes the personal attention of commanders in the management of maintenance operations. The guidance recognizes that the need for a medical item is clinically driven, however, the method used to satisfy that identified need is resource driven. While a clinician may be in the best position to determine the need, the clinician is not in the best position to decide how the need will be satisfied.

b. The basic philosophy of the waiver policy is to maintain command visibility of these actions, to ensure the best use of Government funds where equipment exceeds normal repair limits, and to provide for controls to preclude the routine treatment of these situations when they arise.

c. The MEL for medical materiel may be exceeded when it is determined that an urgent need for the item exists to save life or prevent distress, and a replacement item will not be available to satisfy the professional requirement.

d. The facility commander approves waivers for equipment when the property book unit price qualifies the item as MEDCASE.

e. The facility commander may delegate to the DOL/C, Logistics waiver authority for those equipment items below the MEDCASE dollar threshold.

(1) A consolidated listing of DOL/C, Logistics waiver approvals will be forwarded to the facility commander at least semiannually. The listing will include at least the previous six months of waivers. Consider forwarding the list before the MTF's equipment purchase Program Budget Advisory Committee (PBAC).

(2) The commander's maintenance directive (para 1-12 of this bulletin) will indicate who has waiver approval authority.

f. A permanent waiver to the MEL may be granted if a MEDCASE requirement has been submitted and approved for purchase.

5-13. Responsibility for requesting waivers.

a. The Medical Maintenance Branch has the responsibility for coding medical equipment and notifying the user (ward, clinic, service, etc.) when the item is uneconomical to repair.

b. Responsibility for obtaining a waiver rests with the user and/or hand receipt holder of the equipment. They have knowledge of the equipment and can justify why the item should be repaired.

c. When maintenance has determined equipment to be uneconomical to repair, the following actions are required:

(1) The MER annotates the work accomplished section of the maintenance request by following the example at figure 5-2:

(a) Estimated parts and parts cost to return the item to a serviceable condition.

MAINTENANCE REQUEST
For use of this form, see DA PAM 738-750 and 738-751; the proponent agency is DCSLOG

PAGE NO | NO OF PAGES | REQUIREMENT CONTROL SYMBOL CSGLD-1047(R1)

SECTION I - CUSTOMER DATA

1a. UIC CUSTOMER	1b. CUSTOMER UNIT NAME	1c. PHONE NO
W0,3,H,4,5	Dental Clinic 1	x 7377

2a. SAMS-2 UIC/SAMS-II/TDA	2b. UTILIZATION CODE	2c. MCSR
W,0,3,H,5,1	ON	

SECTION II - MAINTENANCE ACTIVITY DATA

3a. WORK ORDER NUMBER (MON)	3b. SHOP	3c. PHONE NO
7,0,9,9,1,0,3,9,9,	Dental	x 7361

4a. UIC SUPPORT UNIT	4b. SUPPORT UNIT NAME
W,0,3,H,1,1	Medical Maintenance Branch

SECTION III - EQUIPMENT DATA

5. TYPE MNT REQ CODE	6. ID	7. NSN
TI		6,5,2,0,-,1,1,7,-,3,4,4,3,

8. MODEL 660

9. NOUN Ultrasonic Unit

10a. ORG WON/DOC NO	10b. EIC

11. SERIAL NUMBER	12. QTY	13. PD
6,1,4,3,2,	1	

14. MALFUNCTION DESCRIPTION (for DSU, GSU/AVIM, DEPOT use)

15a. FAILURE DETECTED DURING/WHEN DISCOVERED CODE (Enter code) See DA Pamphlets 738-750 and 738-751

15b. FIRST INDICATION OF TROUBLE/HOW RECOGNIZED CODE (Enter Code) See DA Pamphlets 738-750 and 738-751

16. MILES/KILOMETERS/HOURS/ROUNDS: M | K | H | R

17. PROJECT CODE (If assigned)	18. ACCOUNT PROCESSING CODE	19. IN WARRANTY? (enter Y or N)	20. ADMIN NO

21. REIMBURSABLE CUSTOMER (If intransit customer enter Y or N)

22. LEVEL OF WORK | 23. SIGNATURE

24. DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURES IN EQUIPMENT TM (Do not prescribe repairs) No water from handpiece MEL - $150.75

25. REMARKS Supply condition code H

26. TECHNICAL REFERENCES Estimated repair costs - $162.00 $102.00 (parts list) + $60.00 (labor)

SECTION IV - TASK REQUIREMENTS DATA

27a. FILE INPUT ACT CD	27b. TASK NO	27c. ACT CODE	27d. TASK DESCRIPTION	27e. QTY TO BE RPR	27f. WORK CENTER	27g. FAILURE CODE	27h. MH PROJ	27i. MH EXP

SAMPLE

SECTION V - PART REQUIREMENTS

28a. FILE INPUT ACT CD	28b. TASK NO	28c. ID NO	28d. NSN OR PART NUMBER	28e. SFX CD	28f. QTY REQD	28g. QTY ISSUED	28h. NMCS CD	28i. FAILURE CODE	28j. STORAGE LOCATION	28k. INITIALS	28l. COST $

28m. TOTAL MANHOURS	28n. TOTAL MANHOURS COSTS $	28o. TOTAL PARTS COSTS $
0.5	10.00	0.0

SECTION VI - COMPLETION DATA

John Doe CW2, USA C, Medical Maint. Branch

29. QTY RPR	30. QTY CONDEMN	31. QTY NRTS	32. EVAC WON	33. EVAC UNIT NAME

SECTION VII - ACTION SIGNATURES

34a. SUBMITTED BY	35a. ACCEPTED BY	35c. DATE	36a. WORK STARTED BY	37a. INSPECTED BY	38a. PICKED UP BY
					Branch

34b. DATE	35b. STATUS	35d. TIME	36b. STATUS	36c. DATE	36d. TIME	37b. STATUS	37c. DATE	37d. TIME	38b. STATUS	38c. DATE	38d. TIME

DA FORM 2407, JUL 94 CONTROL COPY 3

Figure 5-2. Maintenance request.

(b) Estimated man-hours to complete the repair.

(c) A supply condition code.

(2) The senior maintenance manager will:

(a) Verify and authenticate the condition code assigned by the MER by placing his/her signature on the maintenance request.

(b) Notify the user and/or hand receipt holder by initiating a memorandum (sample provided at figure 5-3).

S:

OFFICE SYMBOL (Marks File No.) DATE:

MEMORANDUM FOR (APPLICABLE HR HOLDER, WARD, CLINIC, SECTION)

SUBJECT: Uneconomically repairable equipment, MMCN _____.

1. Equipment identified on the attached maintenance request (Encl 1), and maintenance record (Encl 2) is not economically repairable and should be disposed of for the reason indicated below:

[ ] Repair will exceed the maintenance expenditure limit (MEL).
MEL = $_____
Estimated cost of repair = $_____

[ ] Equipment is declared professionally undesirable.

[ ] Equipment is considered hazardous for use on human patients.

2. If you do not want the item repaired, endorse this memorandum back to medical maintenance indicating that repair is not required.

3. If you want the item repaired, endorse this memorandum to the (Commander/DOL/C,Log), providing justification as to why the item should be repaired.

4. Before a decision is made to request a waiver, you should coordinate with the property book officer, MEDCASE manager, and the medical maintenance manager.

2 Encls

SIGNATURE BLOCK
OF THE SENIOR
MAINTENANCE MANAGER

Figure 5-3. Initiate waiver memo sample.

(c) Attach a copy of the Maintenance Historical Record and applicable work request to the memorandum.

(d) Close the maintenance request regardless of the user's intent to acquire a waiver. Include repair costs incurred up to the point of making the determination that a waiver was required to complete the repairs.

(3) The user (ward, clinic, service, etc.) will:

(a) Consult and coordinate with the PBO, MEDCASE manager, and maintenance manager.

(b) Prepare an endorsement to the MTF commander or DOL/C, Logistics when a waiver is requested. Provide the necessary justifications. If the user decides that repair is not desired, endorse the memorandum back to the maintenance branch indicating that disposal action is desired.

(4) The commander or DOL/C, Logistics will endorse the memorandum back through the user (requester) to maintenance indicating approval or disapproval.

(5) Upon receipt of an approved waiver, the maintenance activity will initiate an unscheduled work order with action code "WA."

(6) The PBO will arrange for pick-up and transportation of equipment to Defense Reutilization and Marketing Office (DRMO) if a waiver has not been approved.

5-14. Waiver file.

Establish and maintain a waiver file (MARKS file number 738) in the Medical Maintenance Branch.

a. The file will contain the original of the waivers authorizing the exceeding of the MEL.

b. Destroy the file copy of the waiver when the equipment item is disposed of by the PBO.

Section IV. LIFE EXPECTANCY

5-15. Life expectancy of medical equipment.

a. The life expectancy classifications for medical materiel are, indefinite life, definite life, and exempt materiel. TB MED 7 defines these classifications.

b. TB MED 7, appendix B, lists life expectancies for medical equipment with a definite life. The predetermined life expectancy in years is based on an average normal usage.

c. Equipment in Depot-A packs or packed in long-term storage medical assemblages retain 100 percent of their life expectancy until placed in service.

d. The life expectancy for medical equipment begins on the date the item is placed in service. All medical equipment is considered in service when the item is ready for clinical or nonclinical use in the care and treatment of patients.

5-16. Adjustments to life expectancy.

a. TB MED 7 describes the procedure used to adjust the life of equipment having an abnormal or subnormal usage.

b. Maintenance managers who want to extend the life expectancy of an item will submit a request to USAMMA, with the following:

(1) Copy of the maintenance record.

(2) Supporting documentation to justify extending the life expectancy.

CHAPTER 6

SCHEDULED SERVICES (PMCS, CVC, ELECTRICAL SAFETY)

Section I. GENERAL

6-1. Policy.

a. The performance of scheduled services on medical equipment will take priority over all medical maintenance responsibilities except for emergency equipment repairs.

b. Give scheduled maintenance services for government-owned medical equipment on contract maintenance the same emphasis and level of management attention as that for equipment maintained by in-house maintenance personnel.

c. Maintenance managers will tailor their scheduled services programs to resources in accordance with the risk-based assessment mechanism provided in appendix G.

6-2. Performance metrics.

The performance objective for scheduled service is to complete 100 percent of those services scheduled during each maintenance period. Minimum acceptable performance levels are:

a. PMCS - 90 percent.

b. CVC - 90 percent.

c. Electrical Safety - 90 percent.

6-3. AMEDDPAS documentation.

a. The AMEDDPAS automatically generates requirements for the performance of scheduled services each month.

(1) AMEDDPAS schedules equipment for services based on the maintenance activities input of the base date and maintenance interval into the database.

(2) A Monthly Scheduled Services Work Order Listing is generated during the monthly performance report cycle (usually the 15th) of the month prior to the scheduled month.

(3) Record the completion of scheduled services using the AMEDDPAS generated monthly scheduled work order listing.

(4) Maintenance managers should adhere to the AMEDDPAS generated schedule for performing scheduled services.

(5) Review base dates periodically and make adjustments that ensure the monthly workload is evenly portioned. Use the Scheduled Services Summary and the SMAC listings to perform the review.

(6) Periodically review priorities, scheduled services requirements, and performance times.

b. Maintenance managers must ensure that scheduled services are completed in a timely manner and entered into the AMEDDPAS database. When scheduled services are performed, they must be completed with a closing date that falls within the month in which the services were scheduled to be accomplished.

c. When items of medical equipment due scheduled service cannot be located, AMEDDPAS captures the man-hours expended in attempting to locate the equipment.

(1) Make a reasonable effort to locate the item.

(2) If not located, close the required scheduled service using an action code of "NL" (not located), and the tech code of the MER designated to perform the scheduled service. A manual input of man-hours is not required; AMEDDPAS automatically assigns 0.2 hours.

(3) Notify the PBO that the item(s) could not be located.

d. Do not input expended man-hours to AMEDDPAS for action codes "IU" (in-use) and "IR" (in-repair).

e. Scheduled services performed at other than computer scheduled intervals will be recorded using an unscheduled work order transaction with action codes, "AA," "CL," "CS," "PC," "PS," or "ST" as appropriate.

f. When multiple actions are scheduled and all services cannot be performed, the services performed will be recorded using an unscheduled work order. Allow the computer generated scheduled service work order to automatically cancel or close the scheduled services work order with "IR" (annotate the work order number on the scheduled services work order sheet) or "IU."

g. Do not record scheduled services accomplished as a portion of a repair (action code "RE") as separate actions.

(1) All actions necessary to restore defective equipment to full operation is considered part of the repair, to include electrical safety and required CVC.

(2) Include the total man-hours expended for all actions performed. **EXCEPTION:** Record the completion of scheduled services using a separate unscheduled work order when an item of equipment was scheduled for service but those services could not be performed due to the item being in-repair.

h. Maintenance managers will establish internal procedures that will ensure those items of equipment that were in-use or in-repair receive the appropriate services as scheduled. The maintenance manager may elect to defer these services until the equipment's next normally scheduled month depending on the criticality of the equipment.

i. Maintain the scheduled service work order listing completed by the MER, and signed by the activity serviced, until superseded.

j. Forward a copy of the Monthly Scheduled Service Work Order Listing to the hand receipt holders to ensure they have the equipment readily available when the maintenance personnel arrive.

(1) Give the hand receipt holder a copy of the completed Monthly Scheduled Work Order Listing. These listings document the completion of scheduled services or the maintenance managers written explanations for nonperformance. The hand receipt holder should retain their copy for 1 year or until provided with an update by Medical Maintenance Branch.

(2) The hand receipt holder will sign the maintenance copy acknowledging the MER's performance of the scheduled services. This acknowledges equipment not located or equipment requiring repairs.

k. Consider providing a copy of the Monthly Scheduled Service Work Order Listing for MMBP equipment to the MMBP manager when the AMEDDPAS outputs are received.

(1) The MMBP manager will take action to notify the hand receipt holders than scheduled services are due.

(2) Consider hand receipted equipment not delivered for services as in-use. Equipment not located requires appropriate administrative action be taken by the MMBP manager IAW AR 40-61 and AR 735-5.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

6-4. Frequency.

Initially inspect all medical equipment prior to use (pre-issue inspection). Medical equipment should then receive a PMCS reinspection semiannually or at least annually. Use TMs, manufacturers' literature, or past maintenance experience when determining the frequency of PMCS.

6-5. Equipment operator preventive maintenance checks and services.

Provide the EO training in the before, during, and after PMCS requirements they must satisfy. Local procedures will determine who provides this training.

Section III. OTHER SCHEDULED SERVICES

6-6. Line isolation monitors.

Test line isolation monitors IAW NFPA 99.

6-7. Conductive flooring.

Conductive flooring shall be tested IAW NFPA 99.

Section IV. CALIBRATION/VERIFICATION/CERTIFICATION

6-8. General.

a. The CVC services are defined as the comparison of a medical system or medical device of unverified accuracy to a measurement system or device of known accuracy to detect and correct, if necessary, any deviations from required performance specifications of the unverified medical system or medical device. This comparison can be accomplished using one or more of the following measuring systems:

(1) An instrument or device, the accuracy of which is directly traceable back to the National Institute of Standards and Technology (NIST). This would include all authorized TMDE with a valid calibration.

(2) A natural physical constant such as the oxygen content of air at normal pressure and temperature.

(3) Other materiel with known performance characteristics. An example is oxygen of 100 percent purity.

b. The CVC services on medical equipment will be IAW federal requirements, manufacturer's recommendations, and other applicable guidance. At a minimum, maintenance activities will consider the medical equipment listed at appendix H for CVC services.

c. Research the manufacturer's literature for the requirement to perform CVC services. When so indicated, annotate the applicable AMEDDPAS record and schedule the item for service.

d. The CVC services, except those services restricted to designated general support (GS) units, will normally be performed as unit maintenance.

e. Attach DD Form 2163 (Medical Equipment Verification/Certification) to the calibrated equipment upon completion of CVC services. TB 38-750-2 contains instructions for the use and completion of DD Form 2163.

f. When CVC services are performed under contract, the contract will clearly specify the contractor's responsibility to affix and/or update a DD Form 2163.

g. Schedule CVC services for at least a semiannually interval unless the manufacturer recommends an alternate interval.

6-9. Audiometers.

a. Calibrate and evaluate audiometers and audiometer test environments IAW TB 8-6515-001-35. Calibration services will be provided by designated AMEDD support maintenance activities either at their facilities or on-site.

b. Audiometers will be calibrated at least once each 360 days, ±30 days.

c. Calibrate audiometers which had repairs that resulted in the replacement of parts that may have affected their calibration before being returned to use.

d. The CONUS AMEDD activities using nonportable/diagnostic audiometers within their healthcare program will provide for calibration support.

e. Calibration of portable/screening audiometers will be provided by a calibrate and return program via commercial transportation modes.

f. The equipment operators must verify accuracy of their audiometers IAW TB MED 501. However, they are not authorized to repair, service, or make adjustments that may affect the calibration of an audiometer.

g. Commercial services for calibration of audiometric equipment are authorized.

6-10. Defibrillators.

a. Evaluate and performance test defibrillators semiannually using a defibrillator analyzer.

b. Use DA Form 5624-R (DC Defibrillator Inspection Record) located in TB 38-750-2 to record the results of the evaluations. Maintain the completed form on file for 6 months pending the next CVC service or until superseded.

c. Affix a DA Label 175 (Defibrillator Energy Output Certification) to the control panel upon completion of the CVC. A DD Form 2163 is not required.

6-11. X-ray equipment.

Chapter 7 of this bulletin describes the calibration requirements for diagnostic x-ray systems.

6-12. Laboratory hoods.

Evaluate laboratory hoods at least annually IAW AR 40-5. Maintain the documentation of such measurements on file until superseded. Consider coordinating these evaluations with the activity's safety manager and/or industrial hygiene office.

6-13. Laminar flow hoods.

Laminar air flow hoods located in the pharmacy will have operational efficiency checks performed annually by a qualified inspector IAW AR 40-2 and JCAHO. Maintain the documentation of such measurements on file until superseded. Consider coordinating these evaluations with the activity's safety manager and/or industrial hygiene office.

6-14. Person-weighing scales.

a. AR 600-9 stipulates the responsibilities of healthcare personnel.

b. There is no calibration requirement for scales in the possession of units other than medical facilities. The actual weight of the soldier is verified at the medical facility where properly calibrated scales are available.

c. Medical maintenance activities are not required to calibrate personnel weighing scales except Military Entrance and Processing Command (MEPCOM) assets. Calibration requirements for the scales within MTF's are:

(1) Scales in MTF's activities designated as the official scales for weight determination require annual calibration. TM 8-6670-001-14&P establishes calibration procedures for these scales.

(2) Calibrate commercial nonstandard scales used as the official scale annually and IAW AR 600-9.

(3) Scales used only for screening purposes do not require periodic calibration.

d. Scales that are designated as the official scales for weight determination will be included in the AMEDDPAS database as subsystem "B."

e. Calibrate scales located at Military Entrance Processing Stations (MEPS) at an annual interval.

Section V. ELECTRICAL SAFETY

6-15. General.

a. Make a continued effort at all levels to provide an electrically safe environment within the hospital.

b. Establish an electrical safety program at the MTFs in accordance with AR 40-61, NFPA 99, OSHA 29 CFR 1910.147, and this bulletin.

c. When discrepancies arise between this bulletin and NFPA 99, use this bulletin as the official guidance.

d. Test equipment required for safety testing will be available and adequate for the types of medical equipment present in the facility.

6-16. Designation of patient care areas.

Patient care areas are designated in writing by the commander of the MTF according to the type of patient care anticipated. According to NFPA 99 the designations for patient care areas are critical care, wet locations, or general care areas.

6-17. Testing frequency.

a. Test all medical equipment before initial use.

b. After the initial testing, test medical equipment intended or likely to come into contact with a patient semiannually. Test all other medical equipment annually.

c. Medical equipment will be safety tested after repairs or modifications have been made to the equipment's electrical or electronic circuitry.

6-18. Test requirements.

a. Leakage current limits will be IAW NFPA 99.

b. Test fixed and portable medical equipment IAW NFPA 99.

c. Take the following steps if equipment does not meet required limits.

(1) Research manufacturer's literature for risk current limits and test procedures.

(2) Determine if the equipment was designed to meet the standards published in NFPA 99.

(3) Consider equipment that meets the manufacturer's recommendation or other recognized standard safe for use.

6-19. Documentation.

a. The JCAHO requires written records of all inspections performed on electrical systems and equipment within hospitals to include any action taken or recommended.

b. The AMEDDPAS entries documenting the completion of an electrical safety test are sufficient documentation for equipment that passes safety testing.

c. The following actions are required for any item or system not passing the required safety test.

(1) Complete applicable local medical equipment electrical safety forms. The forms will document defects, recommendations, and actions taken.

(2) Notify the owning activity of the potential hazard.

(3) Affix a DD Form 1577 (Unserviceable (Condemned) TAG - Materiel) to the equipment noting the safety defect. Do not remove the tag until the defect has been corrected.

(4) Enter action code "IR" on screen RPBMB-SO1 to denote that the item required repair.

(5) The Medical Maintenance Branch initiates a repair maintenance request to correct the defect. Upon completion of the repair, attach a copy of the completed maintenance request to the appropriate DA Form (see paragraph 6-19c(1) above). Maintain these forms in the maintenance branch for 1 year.

(6) When the safety defect has been corrected, initiate an unscheduled work order using action code "ST" to document the passing of the safety test on the item's maintenance record.

d. Do not use commercially procured labels, stickers, or forms to document or record the performance of safety tests. Use only those forms listed in TB 38-750-2.

6-20. Nonclinical/nonmedical equipment testing.

a. The testing of nonmedical equipment within the facility will be IAW AR 750-1 and MACOM suppplements to AR 385-10.

b. When the MTF medical maintenance activity has the responsibility for the performance of remedial repairs on nonmedical equipment, they also assume responsibility for ensuring safety tests are performed.

c. Coordination should be accomplished with by the MTF safety manager to obtain test support for nonmedical equipment.

6-21. Personally owned electrical equipment.

a. The use of personal electrical equipment by patients and the staff is prohibited unless such equipment has been approved in writing as safe by the appropriate hospital personnel prior to its use as designated by the hospital safety committee.

b. Most personal electrical appliances have two conductor power cords. These items cannot be safety tested and therefore do not require a safety test be performed by the medical maintenance activity. The MTF's safety manager should train supervisors to perform the required visual safety inspection and document the results.

c. The safety committee should recommend and approve the purchase of commonly used patient comfort electrical equipment that would be used by hospital patients (hair dryers, electric shavers, etc.).

6-22. Adapters and extension cords.

a. The use of adapters and extension cords is prohibited except in the case of an emergency or as authorized in NFPA 99.

b. Exceptions for using extension cords will only be approved by the authority having jurisdiction (AHJ). The AHJ at most activities is the installation fire chief. The initial assessment for determining the need of an extension cord will be accomplished by the Activity Safety Manager and the Chief, Medical Maintenance Branch.

c. Extension cord specifications will be determined by the AHJ. At a minimum, extension cords will be 16 guage or heavier and not exceed 10 feet in length. They will accommodate the connection of only one piece of equipment and are not a substitute for fixed wiring. (i.e., extension cords are for temporary use only).

d. The Medical Maintenance Branch will not provide multi-outlet strips. The AHJ will be the approving authority for their use.

e. The testing of extension cords and adapters will be IAW NFPA 99. Initially test adapters and extension cord wiring for physical integrity, polarity, ground integrity, and periodically from then on. Extension cords are considered nonmedical equipment regardless of where they are used, and as such will be tested in accordance with paragraph 6-21 of this bulletin.

6-23. Rack and cart mounted equipment.

a. Each item of medical equipment mounted in an equipment rack or cart shall meet the electrical safety testing requirements of NFPA 99. Exceptions are established for those equipment items not manufactured to operate as a stand-alone appliance.

b. When multiple items of medical equipment are mounted together in a cart or rack, and one power cord supplies power to all the items, the cart or rack shall meet the electrical safety testing requirements of NFPA 99. Perform testing with all appliances electrically connected to the cart or rack's common outlet strip.

CHAPTER 7

MANAGEMENT AND CONTROL OF DIAGNOSTIC X-RAY

Section I. GENERAL

7-1. Requirements for new systems - MEDCASE.

a. SB 8-75-MEDCASE identifies preacquisition requirements for imaging equipment that must be submitted with the MPR.

b. The preacquisition site survey (PASS) is usually initiated by the local medical maintenance activity. SB 8-75-MEDCASE illustrates a sample PASS and describes what supporting documents to submit.

c. Disapproval of the equipment requirement or unnecessary delays could result when MPRs are received without a PASS.

7-2. Design or modification of x-ray facilities.

a. Only representatives who have demonstrated their competence in the field of radiation protection will design or modify the installation of diagnostic and therapeutic x-ray facilities.

b. A qualified expert will review any design or modification of x-ray facilities IAW AR 40-5. This will preclude the occurrence of avoidable radiation hazards.

c. Forward requests for review to the United States Army Center for Health Promotion and Preventive Medicine (USACHPPM), Aberdeen Proving Ground, MD 21010-5422.

d. Include the approved design for the installation of a new system as part of the PASS.

Section II. MAINTENANCE AND CALIBRATION

7-3. Calibration/verification/certification requirements.

a. Calibrate commercial diagnostic x-ray systems at the frequency specified by the manufacturer. Use a frequency of annual if the manufacturer does not specify an interval.

b. X-ray systems will be calibrated/verified so that their tolerances meet the manufacturer's specifications.

c. Only trained MERs qualified in the maintenance of x-ray equipment will accomplish x-ray equipment calibrations. They will be knowledgeable of the specific requirements of the Radiation Control for Health and Safety Act.

d. Excessive clinical requests for routine x-rays of patients are not considered justification to delay calibration of diagnostic x-ray equipment.

e. Invasive or noninvasive type TMDE may be used to perform x-ray CVC.

7-4. Calibration/verification/certification requirements records for diagnostic x-ray systems.

a. Use DD Form 2164 (X-Ray Verification/Certification Worksheet) to record the results of CVC for all diagnostic x-ray equipment, including computer tomography (CT), linear accelerators and radiation therapy systems.

b. Complete DD Form 2164 IAW TB 38-750-2 and the following.

(1) A separate sheet of paper will be attached to the DD Form 2164 to indicate the manufacturer, model, serial number, and date of calibration expiration of all items of TMDE used to perform the CVC.

(2) Maintain the completed DD Form 2164 in the RPPF for 1 year pending completion of the next x-ray calibration.

c. When performed by a contractor, file the contractor's calibration worksheet (which specifies actual services performed) and associated service report in the x-ray RPPF for 1 year pending completion of the next x-ray calibration.

d. Individuals performing the CVC service, whether contractor or DA personnel, will complete DD Form 2163 and display it prominently on the system.

7-5. Contracted calibration/verification/certification.

Normally unit MER personnel will perform calibration services on x-ray equipment.

a. When using contractual services, records requirements will be identical to those required for DOD personnel. All contracts must clearly specify these requirements.

b. Consider including statements similar to the following in all contracts that require calibration of x-ray systems.

"The contractor shall complete DD Form 2164 in accordance with the instructions provided in TB 38-750-2. A continuation sheet shall be attached to the DD Form 2164 indicating the manufacturer, model, serial number, and date of calibration expiration of all items of test and measurement equipment used to perform the calibration. Required forms and extracts from pertinent directives will be furnished to the contractor by the government."

Section III. INSPECTION PROGRAMS

7-6. Radiation protection surveys (ionizing and nonionizing).

a. Surveys are performed on a scheduled and requested basis to meet Federal, Army, and JCAHO requirements.

b. Radiation protection surveys may be performed by an assigned qualified expert, i.e., an appropriately trained medical center (MEDCEN)/medical department activity (MEDDAC) Nuclear Medical Science Officer/Health Physicist, a Health Physics NCO, or an equivalently trained civilian. If no qualified expert is assigned, the required survey can be obtained by—

(1) Requesting the service from the supporting MEDCEN.

(2) Requesting the service from the Commander, USACHPPM, ATTN: MCHB-MR-L, Aberdeen Proving Ground, MD 21010-5422.

(3) Contracting with a qualified civilian vendor.

c. Give strong consideration to a radiation survey of newly installed diagnostic x-ray systems prior to using the system.

(1) The acceptance inspection performed by a qualified MER verifies the correct operation of the new system for payment purposes only. Do not misinterpret this action as an indication that the system is safe by radiation protection standards.

(2) The MTF commander will determine whether to use a new system prior to a radiation survey being performed. This decision is based on MACOM policy and input from the local Radiation Protection Officer (RPO). However, approval must not be given unless an acceptance inspection has been completed with no discrepancies resulting from equipment operation.

d. The medical maintenance activities will provide a qualified MER to assist the RPO performing the surveys on x-ray units belonging to the Active Army and MEPS. The local RPO will request these services when needed.

e Written notifications of radiation surveys are normally forwarded to the MEDCEN/MEDDAC commander 30 days prior to the arrival of the surveying officer. Take the following actions upon receipt of written notification of a survey.

(1) The MEDCEN/MEDDAC commander should direct the DOL/C, Logistics Division, to assign the senior maintenance manager to establish contact with the surveying officer prior to his/her arrival.

(2) The senior maintenance manager will designate an MER (military occupational specialty (MOS) 91A or civilian equivalent) who will accompany the surveying officer during the survey period.

(3) The designated MER will

(a) Arrive at the site where the survey is to be performed prior to the arrival of the radiation protection survey officer, allowing sufficient time to perform any required maintenance prior to the actual survey.

(b) Remain with the surveying officer during the entire period of the survey.

(c) Coordinate with the surveying officer and correct minor discrepancies on the spot.

(d) Correct (to the extent possible) all deficiencies discovered as a result of the survey.

(e) Report to the medical maintenance supervisor all deficiencies for which corrective action could not be accomplished due to lack of time or repair parts.

f The medical maintenance supervisor will take immediate action to correct all deficiencies reported as a result of the radiation survey.

g Maintain a record of the latest radiation protection survey in the maintenance activity RPPF for each system surveyed.

h Radiation surveys performed by the USACHPPM or performed locally by a qualified expert will be entered in the automated equipment record (AMEDDPAS screen RPBMA-SO1) by using action code "RS." Annotate the work order number on the radiation survey document and place it in the RPPF.

i Nonionizing radiation protection surveys performed on radio frequency, ultrasound radiating equipment, etc., will also have the automated records posted IAW the recording procedures for ionizing radiation equipment.

7-7. Acceptance inspection - MEDCASE purchased.

a Acceptance inspections will be performed on all new x-ray systems purchased through the MEDCASE Program.

(1) These acceptance inspections are coordinated by the USAMMA's Medical Maintenance Operations Division - California.

(2) The MACOM medical maintenance activities will perform the acceptance inspection on all new x-ray systems within their capabilities (qualified MER, adequate TMDE, etc.).

(3) The medical maintenance activity will notify the USAMMA when it is determined that assistance in performing the acceptance inspections is required.

(4) The USAMMA will provide the x-ray acceptance workbooks necessary for documenting the results of an acceptance inspection.

b A newly installed x-ray system may be used without the performance of an acceptance inspection provided a radiation survey has been performed.

7-8. Acceptance inspections - other than MEDCASE purchased.

a Formal acceptance inspections and the reporting of the findings to the DPSC are only required when x-ray systems are purchased through DPSC. X-ray systems purchased with local capital equipment funding through the local Directorate of Contracting or supporting MEDCEN will have the same level of acceptance inspection as those purchased through DPSC. Acceptance inspections ensure the receipt of an acceptable product, which meets the contract specifications and is operational, prior to payment.

b Perform an acceptance inspection on all new x-ray systems purchased through programs other than the MEDCASE Program.

(1) These acceptance inspections are coordinated and performed by the activity owning the new x-ray system.

(2) Medical maintenance activities will perform these acceptance inspections. Communications with the activities Regional Medical Command (RMC) should occur when a lack of qualified MERs or test equipment will result in a delay in completing acceptance inspections.

(3) Consider using the USAMMA x-ray acceptance workbook to document the results of the acceptance inspection. Dental panographs and intra-oral system do not require documentation using the x-ray acceptance workbook.

7-9. Food and Drug Administration surveillance inspections.

a. Agreement between the DOD and the National Center for Devices and Radiological Health (NCDRH) allows NCDRH personnel to conduct FDA surveillance inspections on x-ray equipment in military hospitals.

(1) Previsit clearances will be kept to a minimum.

(2) The NCDRH inspectors or regional offices should coordinate with the local hospital commander before the visit.

b. Activities receiving NCDRH requests to conduct FDA surveillance inspections on AMEDD x-ray equipment will notify their MACOM before the date of inspection.

c. Maintain reports of these inspections in the equipment's RPPF located at maintenance activities.

Section IV. FILES, REPORTS, AND RECORDS

7-10. Radiation protection program files (RPPF).

a. These files result from efforts to minimize hazards to personnel and property when using radiation sources and documenting the effectiveness of such efforts. RPPFs are required by AR 25-400-2.

b. Initiate a RPPF (MARKS file number 738-750l) for each certified x-ray system. Retain the file for the life of the system and for five years after the unit has been disposed of through DRMO. Each RPPF will contain the following:

(1) The initial acceptance inspection report to determine compliance with manufacturer's stated specifications.

(2) All current Forms FDA 2579 (Report of Assembly of a Diagnostic X-ray System).

(3) Latest copy of DD Form 2164.

(4) Copy of the initial radiation protection survey and the most recent survey performed by a qualified expert.

(5) Copy of the automated maintenance record reflecting scheduled and unscheduled services performed. Consider retaining copies of completed maintenance requests until receipt of an updated automated maintenance record.

(6) Copy of the work request used to condition code x-ray systems disposed of through DRMO.

c. Whenever any of the above required documents is missing, the maintenance manager will make every effort to locate the missing documents by contacting the manufacturer/vendor, or USAMMA NMP. Place an explanatory memorandum, signed by the senior maintenance manager, in the appropriate x-ray file to account for documents not located.

7-11. Report of assembly of a diagnostic x-ray system (Form FDA 2579).

a. All assemblers who install certified x-ray systems/components are required by Federal law to file a report of such assembly per the requirements set forth in 21 CFR 1020.30(d). Noncertified x-ray systems/components do not require submission of Form FDA 2579.

b. The 21 CFR 1020.30(d)(2) specifies exceptions to reporting requirements.

c When the assembly is performed by a contractor, the contractor's representative, who had direct supervisory responsibility for the assembly, prepares the Form FDA 2579.

d Prepare Form FDA 2579 according to appendix I when MTF personnel (military or civilian) perform the assembly. Refer to a sample of Form FDA 2579 (fig 7-1).

7-12. Certified x-ray systems installed but not previously reported.

a Maintenance managers will review the RPPFs to determine if a Form FDA 2579 was submitted when the system was initially installed/assembled.

b If no form is on file, make every effort to locate the form by contacting the manufacturer/vendor, or USAMMA NMP. Take the following action when the form cannot be located:

(1) Complete a Form FDA 2579 IAW instructions at appendix I.

(2) Item 6 (Comments) of the form will include the statement:

Form FDA 2579 for initial assembly cannot be located. This form initiated on _date_. Item 3e "Date of Assembly" is the "date put in service" as reflected on the AMEDDPAS RMR.

(3) The senior maintenance managers will authenticate the form by placing their signature in the comment section of Form FDA 2579.

c. Upon completion of the above, follow the disposition instructions below.

7-13. Disposition of Form FDA 2579.

Disposition of Form FDA 2579 for x-ray systems belonging to the MTF or supported activities:

a When assembly/installation is performed by MTF personnel, maintenance managers will:

(1) Retain the pink (purchaser's) copy in the equipment's RPPF or furnish this copy to the unit owning the system.

(2) Forward the white copy to Director, Center for Devices and Radiological Health, 5600 Fishers Lane, Rockville, MD 20857, within 15 days from completion of the assembly.

(3) Destroy the yellow copy (state copy). Federal activities are not required to furnish a copy to the state agency.

(4) The assembler retains the blue copy (assembler's copy) for 5 years. When more than one MER assists in the assembly/installation, consider designating the senior person as the assembler.

b When the assembly/installation is accomplished by other than MTF personnel, the Chief, Medical Maintenance shall be furnished the pink (purchaser's) copy of the Form FDA 2579 for inclusion in the RPPF. The contractor's assembler is responsible for forwarding the remaining forms IAW 21 CFR 1020.30d(1).

7-14. Retention of Form FDA 2579.

Retain the pink (purchaser's) copy of every Form FDA 2579 in the RPPF until each specified component identified on the form has been salvaged or installed on another x-ray system.

7-15. Disposal/transfer of certified x-ray systems.

a Place a copy of all forms, used in the condition coding process, in the systems RPPF.

b Retain RPPFs for systems disposed of through the DRMO in the current file area for 5 years.

c Forward RPPFs pertaining to systems laterally transferred to another activity to that gaining activity.

FOR FDA USE ONLY

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
FOOD AND DRUG ADMINISTRATION
REPORT OF ASSEMBLY
OF A DIAGNOSTIC X-RAY SYSTEM

Form Approved: OMB No. 0910-0310
Expiration Date: December 31, 1997
See Reverse for OMB statement

D 254351

1. EQUIPMENT LOCATION

a. NAME OF HOSPITAL, DOCTOR OR OFFICE WHERE INSTALLED: US Army MEDDAC
b. STREET ADDRESS: Bldg 1234
c. CITY: Fort Wilson
d. STATE: TX
e. ZIP CODE: 12345
f. TELEPHONE NUMBER: (111) 111-1111

2. ASSEMBLER INFORMATION

a. COMPANY NAME: Medical Equipment Maintenance Branch
b. STREET ADDRESS: Bldg 5678
c. CITY: Fort Wilson
d. STATE: TX
e. ZIP CODE: 12345
f. TELEPHONE NUMBER: (111)111-2222

3. GENERAL INFORMATION

a. THIS REPORT IS FOR ASSEMBLY OF CERTIFIED COMPONENTS WHICH ARE (Check appropriate box(es))
- [X] NEW ASSEMBLY FULLY CERTIFIED SYSTEM
- [ ] REASSEMBLY FULLY CERTIFIED SYSTEM
- [ ] REASSEMBLY ASSEMBLY FOR SALE (Each certified component previously assembled)
- [ ] REPLACEMENT COMPONENTS IN AN EXISTING SYSTEM
- [ ] AN ADDITION TO AN EXISTING SYSTEM

b. INTENDED USE(S) (Check appropriate box(es))
- [X] GENERAL PURPOSE RADIOGRAPHY
- [X] GENERAL PURPOSE FLUOROSCOPY
- [ ] TOMOGRAPHY (Other than CT)
- [ ] MAMMOGRAPHY
- [ ] RADIATION THERAPY SIMULATOR
- [ ] CT SCANNER
- [ ] BONE DENSITOMETRY
- [ ] DENTAL
- [ ] DENTAL PANORAMIC
- [ ] RADIATION THERAPY SIMULATOR
- [ ] C-ARM FLUOROSCOPE
- [ ] DIGITAL
- [ ] OTHER (Specify in remarks)

c. THE X-RAY SYSTEM IS (Check one)
- [X] STATIONARY
- [ ] MOBILE

d. THE MASTER CONTROL IS IN ROOM: Bldg 237, Rm 107

e. DATE OF ASSEMBLY: 05 (mo.) 07 (day) 93 (yr.)

4. COMPONENT INFORMATION *(If additional space is needed for this section use another form, replacing the preprinted number with this Form Number, and complete items 1, 4, and 5 only)*

a. THE MASTER CONTROL IS
- [X] A NEW INSTALLATION
- [ ] EXISTING (certified)
- [ ] EXISTING (Re-certified)

b. CONTROL MANUFACTURER: X-Ray
c. CONTROL SERIAL NUMBER: 123456
d. DATE MANUFACTURED: 05/15/89
e. CONTROL MODEL NUMBER: ABCD
f. SYSTEM MODEL NAME (CT Systems Only):

Complete the following information for the certified components listed below which you installed. For beam limiting devices, tables and CT gantries enter the manufacturer and Model number in the indicated spaces. For other certified components, enter in the appropriate blocks how many of each you installed in this system.

a. SELECTED COMPONENTS

	MANUFACTURER	MODEL NUMBER	DATE MANUFACTURED
Non-Certified Device	X-Ray	ABC	5-89
	X-Ray	DEF	5-89
TABLE	X-Ray	GHI	5-89
X-RAY TUBE			

b. OTHER CERTIFIED COMPONENTS (Enter number of each installed in appropriate block)

1	X-RAY CONTROL		CRADLE
1	HIGH VOLTAGE GENERATOR		FILM CHANGER
	VERTICAL CASSETTE HOLDER	1	IMAGE INTENSIFIER
2	TUBE HOUSING ASSEMBLY	1	SPOT FILM DEVICE
	DENTAL TUBE HEAD		OTHER (Specify)

5. ASSEMBLER CERTIFICATION

I affirm that all certified components assembled or reassembled by me, for which this report is being made, were adjusted and tested by me according to the instructions provided by the manufacturer(s), were of the type required by the diagnostic x-ray performance standard (21 CFR Part 1020), were not modified to adversely affect performance, and were installed in accordance with provisions of 21 CFR Part 1020. I also affirm that all instruction manuals and other information required by 21 CFR Part 1020 for this assembly have been furnished to the purchaser and, within 15 days from the date of assembly, each copy of this report will be distributed as indicated at the bottom of each copy.

a. PRINTED NAME: John Doe, SrSGT
b. SIGNATURE: John Doe
c. DATE: 01/05/93

6. COMMENTS

MMCN-A3698

FORM FDA 2579 (8/95) PREVIOUS EDITION IS OBSOLETE

U.S. GPO: 1995-386-466/20048 EF

Figure 7-1. Report of assembly of a diagnostic x-ray system.

CHAPTER 8

TECHNICAL INSPECTION AND CONDITION CODING

Section I. GENERAL

8-1. Purpose.

This chapter provides guidance required for compliance with AR 40-61, AR 750-1, AR 725-50, TB MED 7, and MACOM directives and discusses:

a. Performing TIs

b. Using proper condition coding procedures

c. Disposing of hazardous excess medical equipment.

8-2. Objectives.

The overall objectives of condition coding are to

a. Establish credibility and confidence in the methods of condition coding excess medical equipment.

b. Preserve the integrity of the lateral transfer redistribution system and ensure that units receive equipment as originally coded.

c. Prevent the wasteful movement of unserviceable excess medical equipment.

d. Make maximum use of excess equipment to satisfy all equipment needs.

e. Standardize coding procedures.

f. Ensure proper coding of equipment sent to the DRMO, thus obtaining the highest net return to the Government for property sold.

8-3. Implementation.

Maintenance managers will take immediate action to implement the contents of this chapter into shop procedures. All MERs perform TIs and classification of medical equipment; therefore, the requirement exists that each MER have a thorough understanding of this directive.

Section II. TECHNICAL INSPECTIONS

8-4. General.

TIs of medical equipment involve analysis per serviceability standards and performance tests. These standards affect the equipment life cycle involving replacement, condition coding, and budgetary requirement. Section III of this chapter discusses inspection standards used in performing serviceability inspections.

8-5. Types of technical inspections.

MER personnel perform the following types of TI:

a. Acceptance/pre-issue

b. Used equipment re-issue

c. Reporting excess equipment

8-6. Technical inspection procedures.

a. Visually inspect and operationally test equipment needing repair or overhaul to the extent possible as part of the inspection evaluation before repair or evacuation to a supporting maintenance facility. Ensure the equipment user has adequately decontaminated the equipment, i.e., removed of all chemicals/chemical residue and potentially infectious substances.

b. Make the greatest use of diagnostic techniques and available test equipment to isolate defective parts. Do not unreasonably disassemble equipment just to check serviceability of parts, components, or assemblies.

c. Only technically qualified personnel will perform a TI on medical equipment.

d. The TI is used to:

(1) Determine the extent of maintenance effort required to make the item serviceable.

(2) Classify the item as economically or not economically reparable.

(3) Prevent the loss of equipment to the Army solely on the basis of age.

e. Perform a TI on medical equipment, either new or returned from depot/commercial activities, before being issued to the using activity.

8-7. Acceptance and pre-issue technical inspection.

a. Acceptance and pre-issue inspections are TIs of newly procured medical equipment before acceptance and issue into the healthcare delivery system per the requirements of AR 40-61 and JCAHO. Figure 8-1 provides a flow chart for accomplishing the inspection.

b. Consider performing the acceptance and pre-issue inspection at the same time. Make every effort to reduce unnecessary movement of equipment, from the time of receipt until delivery to the customer.

c. After the installation medical supply activity's (IMSAs) receipt of medical equipment, MERs will perform a TI of the equipment to ensure the equipment meets contract specifications and is operational and safe for patient use.

d. Pay special attention to the requirements of the equipment purchase order/contract. Some equipment requires vendor installation; opening the equipment package may void the contract and any warranties. Also, some equipment does not require payment until after vendor installation/setup. Appendix J discusses the development of a TI packet for monitoring the TI process.

e. Perform a complete TI, if possible, within 4 working days of the equipment receipt. This allows the IMSA to meet the requirements for prompt payment.

f. All medical equipment will receive a complete TI before the equipment being issued to the PMO and being accounted for through the AMEDDPAS. The senior maintenance manager will establish procedures ensuring that at least the following are provided to the PMO for input to the AMEDDPAS property book:

(1) Serial number.

(2) Manufacturer.

(3) Model.

(4) National stock number (NSN). (Verify like items on the property book.)

(5) IDC (SB 8-75-MEDCASE).

(6) Subsystem code.

(7) Emergency Care Research Institute (ECRI) code.

NOTE

Consider using the worksheet at figure 8-2 for the identification of AMEDDPAS data that will require input by the PBO and medical maintenance.

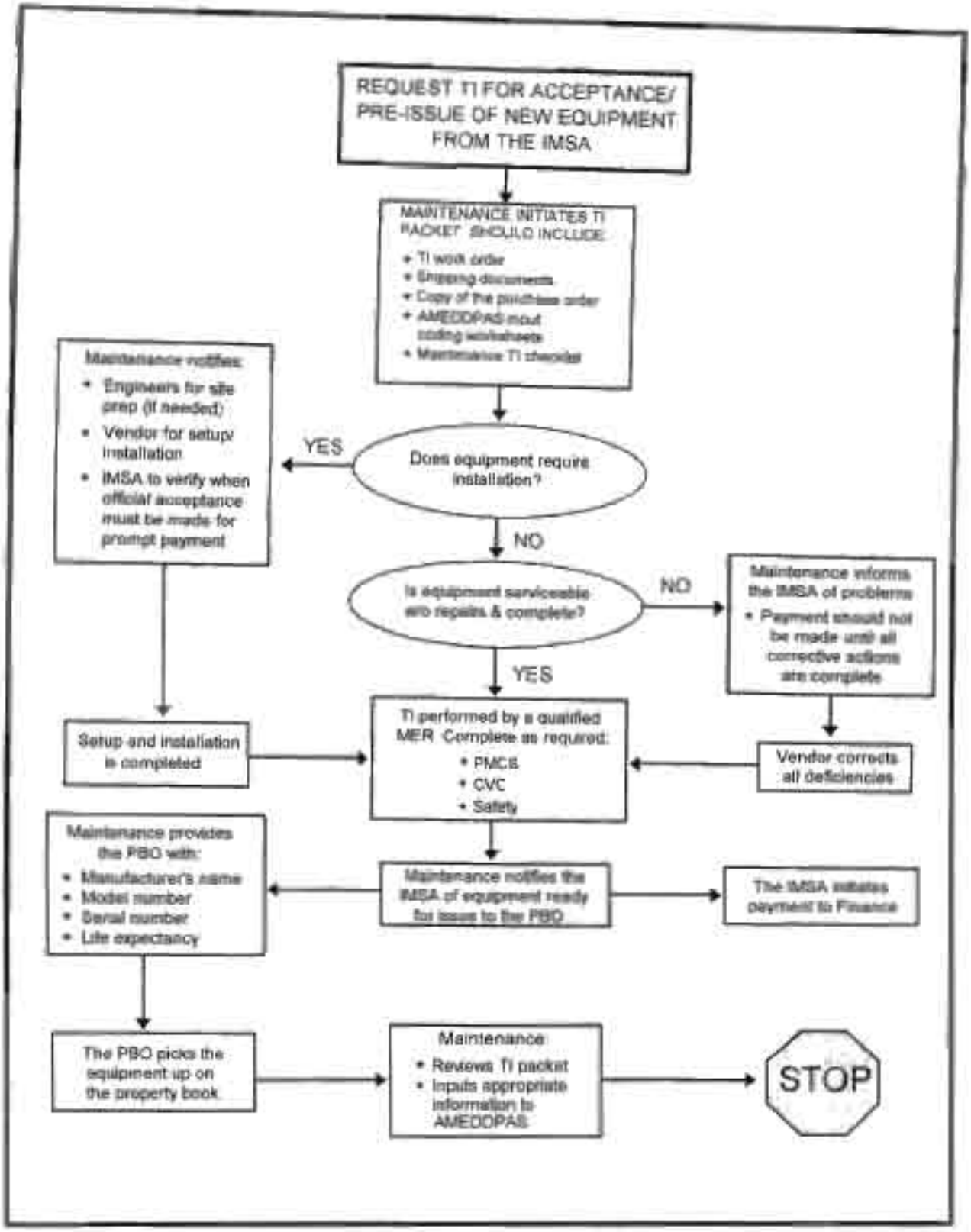


Figure 8-1. Decision matrix for TI for acceptance/pre-issue.

NEW EQUIPMENT TI WORKSHEET
(GOVERNMENT OWNED, LEASED, RENTED)

I. PROPERTY BOOK INFORMATION

SUBSYS CD: _____ OWNERSHIP CD: _____ MMCN: _____ LE: ____
IDC: _____ GENERIC NOMEN: _____
STOCK NUMBER: _____
MFG: _____
SERIAL #: _____ MDL: _____
ECRI CODE: _____

II. MAINTENANCE DATA

DATE MANUFACTURED: _____ SMAC: _____
WORK CENTER CD: _____ EQUIP TYPE: _____ PRI CD MAINT: ____
PM CAT: _____ ST CAT: _____ CL CAT: _____
PM INT: _____ ST INT: _____ CL INT: _____
PM TIME: _____ ST TIME: _____ CL TIME: _____
PM BASE DATE: _____ ST BASE DATE: _____ CL BASE DATE: _____
TECHNICAL REFERENCE: _____

III. WARRANTY INFORMATION

WARR CD: W PO NUMBER: _____
WARR START DATE: _____ WARR EXPIRATION DATE: _____
EQUIPMENT VENDOR: _____
POC: _____ VENDOR PHONE #: _____

IV. TI WORK ORDER

ACTION CD: TI WO DISP: _____ DATE WO RCVD: _____
DATE MAINT STARTED: _____ DATE WO CLSD: _____
TECH CD: _____ MHRS UNSCHD: _____
WO RCVD BY: _____

V. FINAL REVIEW

WORKSHEET REVIEWED BY: _____ DATE: _____
COMMENTS: _____
_____

Figure 8-2. New equipment TI worksheet.

g. Inspect equipment for:

(1) Appearance (external damage).

(2) Completeness (accessories, manufacturer's literature, etc.).

(3) Internal condition (damage, leaks, broken parts, etc.).

(4) Proper performance.

(5) Compliance with provisions of the contract under which the item was requested. The IMSA will provide a copy of the contract/purchase order to the medical maintenance activity.

h. Consider having the hand receipt holder pick up new equipment directly from the medical maintenance activity. The PBO must have completed all receipt procedures and ensured accountability before pick up.

8-8. Technical inspection of used equipment for re-issue.

a. Inspections of used equipment for re-issue are inspections of used expendable, durable, and nonexpendable technical medical equipment. Equipment is either electrical, electronic, or electro-mechanical, requiring the services of a MER.

b. Inspection is to ensure serviceability or reparability of an item removed from service by one user for reentry into the supply system.

c. Functioning equipment turned in to the PBO by a ward or clinic need not be routinely inspected for re-issue to another activity within the MTF.

d. The PBO will initiate a maintenance request when a determination is made that a TI be conducted before re-issue to another section within the MTF. The maintenance request will state "Request TI for re-issue."

e. Use action code "TI" when establishing the maintenance request.

f. Use action code "TI" for MMBP equipment according to the procedures established in chapter 3 of this bulletin.

8-9. Technical inspection for reporting excess equipment.

a. Only equipment that becomes excess to the needs of the MTF requires a TI for reporting excess. Figure 8-3 provides a flow chart for conducting TIs for reporting excess equipment.

b. The PBO will assign medical equipment coded subsystem "B" to hand receipt AAX before submission to the medical maintenance activity for being coded as excess to the activities needs during the TI.

c. The PBO will state "Request TI (classification) for Reporting Excess" in the description of deficiencies block of the maintenance request.

d. Use action code "XI" when establishing the maintenance request.

e. The PBO should request AMEDDPAS report RPBDY-RC1, Excess "B" Items Without Condition Code Report, on a monthly basis and reconcile the report with the maintenance activity.

8-10. Assistance from USAMMA's Medical Maintenance Operations Divisions.

Upon request, USAMMA's Medical Maintenance Operations Divisions will provide assistance to field personnel in determining the AMEDD GS maintenance labor rate and other assistance needed in the performance of TI. They will also assist in the preparation of costs or man-hour estimates for materiel evacuated to USAMMA's Medical Maintenance Operations Divisions.

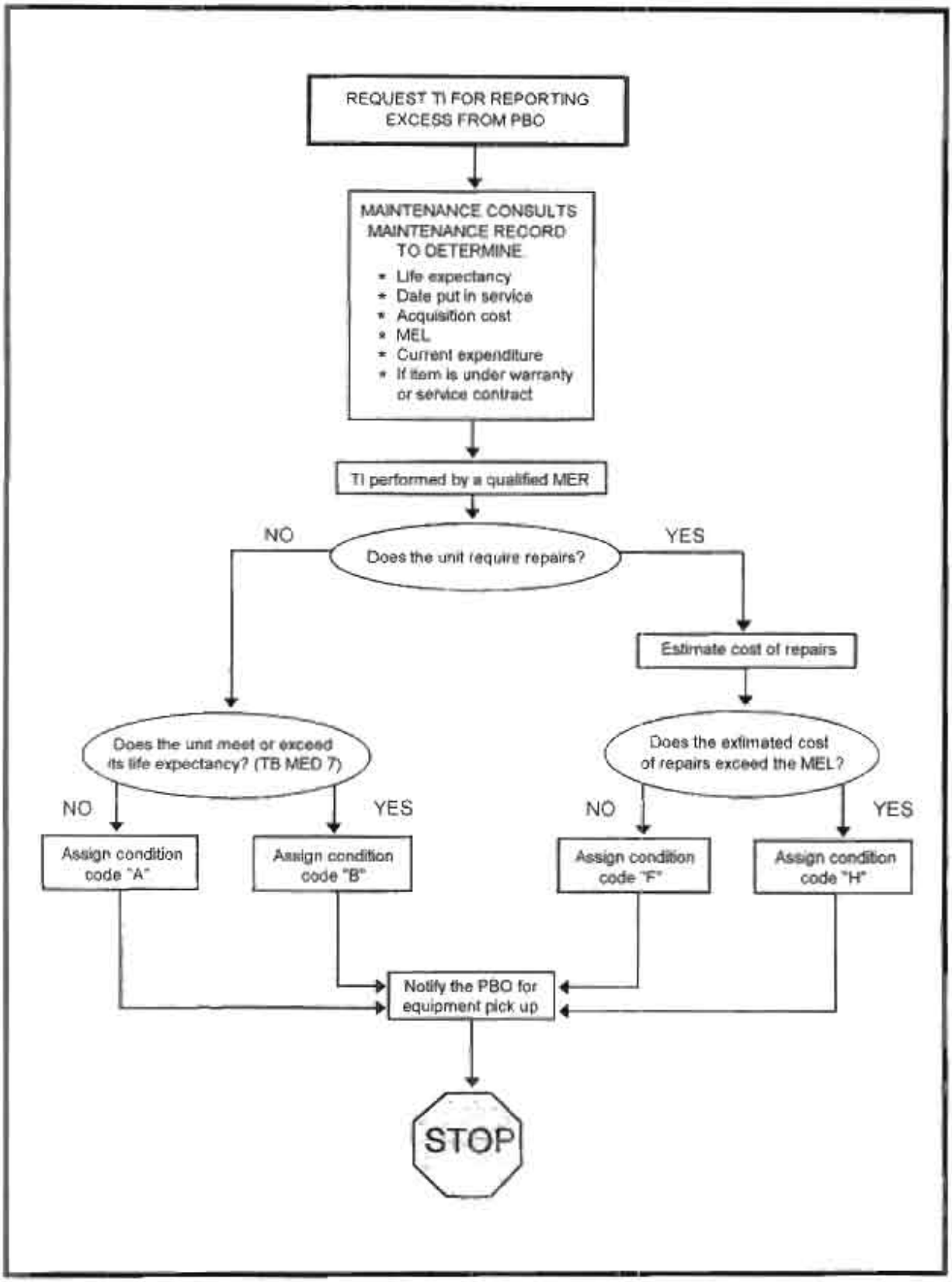


Figure 8-3. Decision matrix for condition coding and reporting excess equipment.

Section III. SERVICEABILITY INSPECTION CHECKLIST

8-11. Inspection standards.

a. This section provides standards for conducting serviceability inspections. Use these standards together with the manufacturer's literature when performing a TI for:

(1) Condition coding/repair eligibility.

(2) Excess reporting.

(3) Budget planning.

(4) Proposed replacement action.

(5) Determining liability.

b. Use the following forms when performing a TI:

(1) DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

(2) DA Form 2407 (Maintenance Request) or automated maintenance request.

(3) DA Form 2407-1 (Maintenance Request -Continuation Sheet) or automated maintenance request.

(4) DA Form 2409 (Equipment Maintenance Log (Consolidated)), or automated maintenance record.

8-12. Categories of inspection.

a. Use the appropriate category of inspection when performing a TI of medical equipment.

(1) Category A - All items.

(2) Category B - Hydraulic/mechanical.

(3) Category C - Positive/negative pressure.

(4) Category D - Heating/cooling/mixing.

(5) Category E - Electrical/electronic.

(6) Category F - Electric motors.

b. Appendix K contains a generic checklist for each category. These checklists are not intended to be complete and may vary depending on type and manufacturer of the equipment as determined by the TI.

c. One or more of the categories may be needed during the TI of an item or system.

Section IV. CONDITION CODING MEDICAL EQUIPMENT

8-13. Federal condition code.

Two characters compose the Federal condition code, each of which is an independently assigned condition code. Federal condition codes are found in AR 725-50 and DOD 4160.21-M, Defense Disposal Manual.

a. The first character is a supply condition code assigned by the generating activity.

b. The second character is the disposal condition code.

8-14. Supply condition code.

a. Supply condition codes are one position composed of an alphabetic character and used to classify materiel. They identify the degree of serviceability, condition, and completeness in terms of readiness for issue and use, or to identify actions underway to change the status of materiel.

b. Medical maintenance activities are responsible for assigning the supply condition code.

c. Use the following supply condition codes when assigning condition codes medical equipment:

(1) "A" - Serviceable medical equipment with life remaining in excess of 6 months.

(2) "B" - Serviceable medical equipment with less than 6 months life expectancy remaining, or has reached or exceeded its life expectancy.

(3) "F" - Unserviceable, economically reparable medical equipment.

(4) "H" - Unserviceable, uneconomically reparable medical equipment that does not meet the repair criteria; i.e., exceeding the MEL. Equipment for which repair parts or manufacturer's repair services are no longer available also qualifies for assignment of this condition code.

(5) "S" - Materiel that has no value except for the basic material content. Do not assign standard medical equipment this code. Assign only material that is actually scrap and cannot be identified as an end item with this code.

8-15. Disposal condition codes.

Disposal condition codes are a one position numeric or alpha character code assigned by the DRMO. They describe the physical condition of the materiel based on inspection at the time of their receipt.

8-16. Who may condition code?

Only a qualified MER will assign supply condition codes for medical equipment.

8-17. Eliminating unnecessary condition coding.

a. Using activities (wards, clinics, etc.) will not submit maintenance requests to request TI (classification) of functioning medical equipment when such equipment is excess to their needs.

b. Using activities will turn in items to the PBO who will determine if a TI is required. The PBO locally advertises equipment within the MTF before submitting a work request for TI for reporting excess.

c. Condition coding, other than mental coding by the MER, is not required for routine "Repair and Return" services. If in the process of inspection and evaluation of the equipment it is determined that repair costs would exceed the MEL, assign a supply condition code of "H."

8-18. Maintenance requests for condition coding.

a. The PBO is responsible for submitting maintenance requests to the Medical Maintenance Branch when it becomes necessary to condition code medical equipment.

b. If the evaluation is based on the item being excess to the MTF and is intended to be reported as excess to the DPSC or USAMMA, the request will state "Request TI (classification) for Reporting Excess."

c. If the MTF receives disposition that directs the equipment be disposed of through the DRMO, the request will state, "Request TI for Disposal to DRMO." Recoding is not required if the item was originally condition coded within 120 days from the date of the item is being disposed of through DRMO.

8-19. Accuracy and assignment of proper condition codes.

a. Condition coding must be accurate to ensure proper disposition of equipment. Improper coding may result in disposal of economically reparable equipment or incur unnecessary costs for transportation, storage, and handling of items that should have been disposed of through DRMO.

b. The assignment of a true and factual supply condition code for items turned in to DRMO will ensure the highest net return to the Government for items sold.

c. Assigning supply condition code "S" (scrap) for items that exceed their MEL is contrary to DA policy. Refer to paragraph 8-14c(5) of this bulletin.

d. To assist in preventing the assignment of the wrong condition code, refer to the MEL factor graph and factor computation located in TB MED 7 or automated maintenance history. Chapter 5, section II, of this TB further discusses MELs.

e. Review by the senior maintenance manager.

(1) The senior maintenance managers assigned to the Medical Maintenance Branch will review, verify, and authenticate all condition codes being assigned by placing his/her signature on the maintenance request. This will ensure credibility and confidence in coding procedures.

(2) The review is required for equipment reported as excess as well as for items designated for DRMO.

(3) The review will point out weak areas in coding procedures and the need for additional training.

(4) Before authorizing disposal of equipment, the PMO and maintenance managers will ensure such action is in the best interest of the Government. Consider:

(a) Value restored to the item.

(b) Current or anticipated future requirements for like or similar items.

(c) Technological changes.

(d) Repair parts supply and supportability.

(e) Requirements for the item.

(f) Remaining life expectancy and estimated cost of each additional year of usage.

(g) Equipment operational reliability.

(h) Pending obsolescence.

8-20. Recoding medical materiel.

a. Recode equipment when the assigned condition code is older than 120 days, regardless of the equipment's destination.

b. To ensure the integrity of the excess equipment program, it is highly encouraged that activities establish local procedures for recoding all medical equipment being laterally transferred to another activity.

c. Recode equipment when the equipment is not available for shipment in the condition originally reported.

8-21. Professionally undesirable and hazardous equipment.

a. Do not perform repairs on hazardous equipment or on medical equipment declared professionally undesirable by the DMSB and hazardous equipment.

b. Mark and/or tag undesirable and hazardous medical equipment. The markings will clearly state the nature of the hazard and condemn the equipment for human use.

(1) Mark equipment condemned for human use with, "CONDEMNED FOR HUMAN USE - NOT FOR PATIENT CARE."

(2) Code this equipment with supply condition code "H" regardless of physical condition or estimated cost of repair.

(3) As an added warning, affix a DD Form 1577 (fig 8-4), to the equipment with the proper notation entered in the remarks section of the tag.

c. Render condemned equipment unusable for its intended purpose IAW AR 40-61. An example of hazardous equipment is the photofluorographic x-ray system (70MM) where the incident skin exposure is in excess of 200 mR (fig 8-5).

d. It is DRMO's responsibility to ensure that condemned equipment is not sold, transferred, or donated for the clinical care of human patients.

e. Donations of serviceable certified and noncertified x-ray systems and their major components shall contain the "caution" statement cited in DOD Manual 4160.21M. This statement is also required for the following property:

(1) Noncertified microwave ovens.

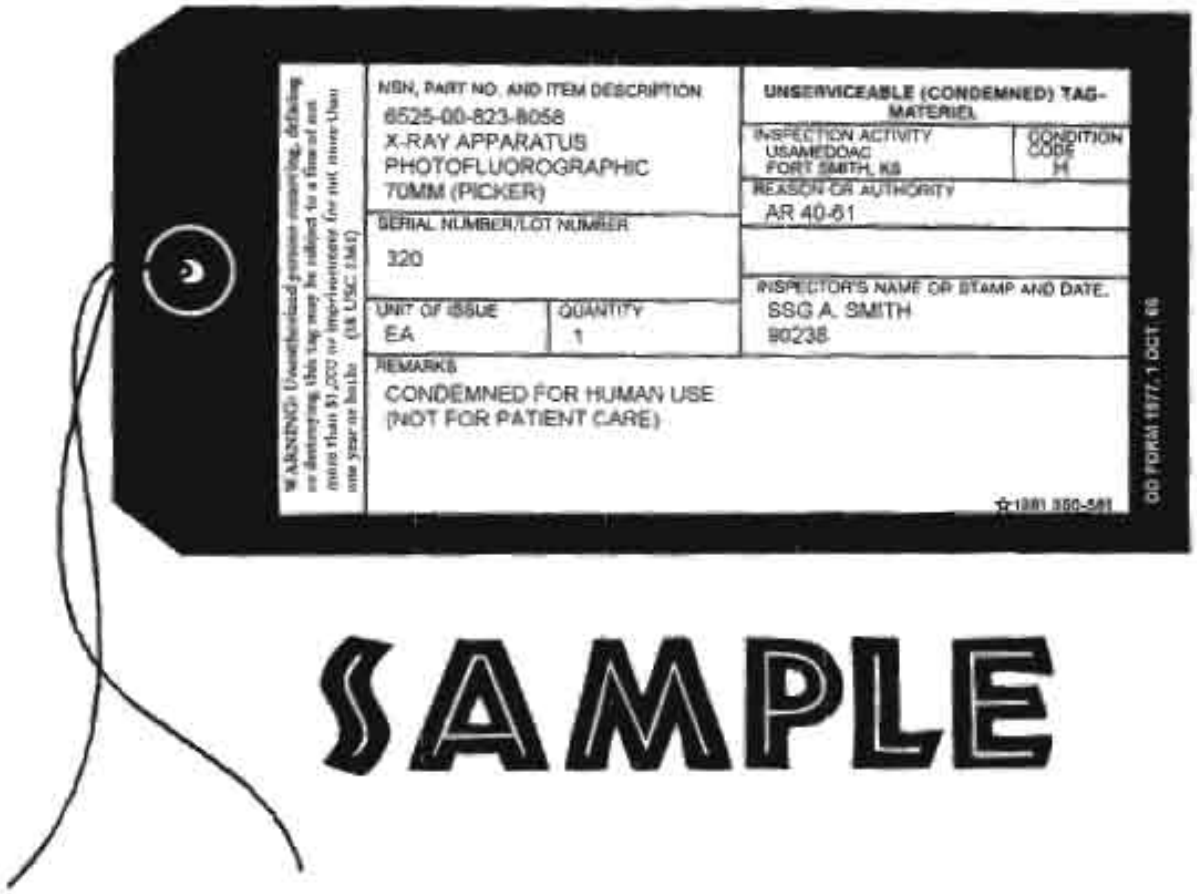
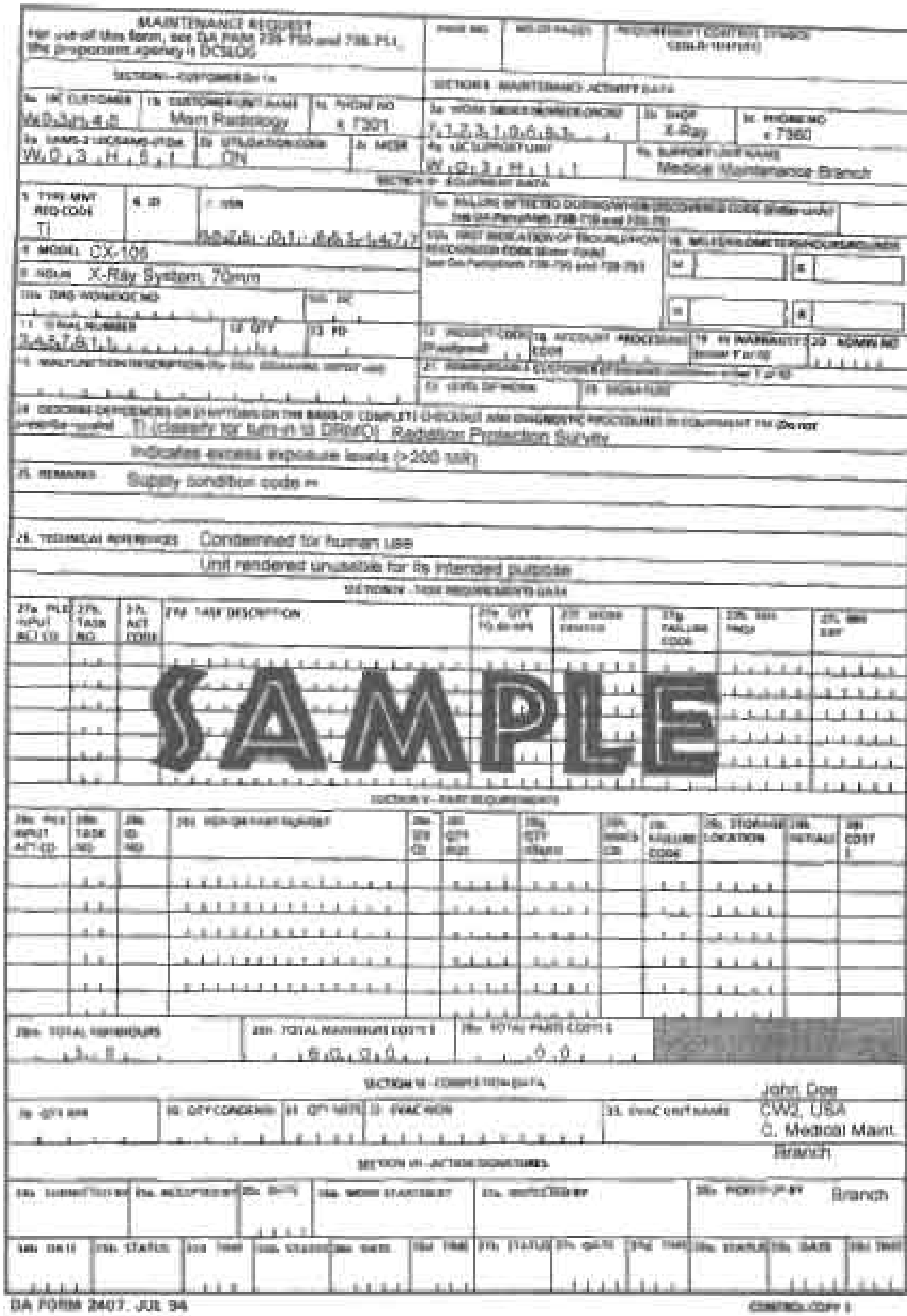


Figure 8-4. Unserviceable (condemned) TAG - materiel.


MAINTENANCE REQUEST

SECTION I - CUSTOMER DATA

1a. UIC CUSTOMER: W03H45

1b. CUSTOMER UNIT NAME: Main Radiology

1c. PHONE NO: x 7301

2a. SAMS-2 UIC: W03H51

2b. UTILIZATION CODE: ON

SECTION II - MAINTENANCE ACTIVITY DATA

3a. WORK ORDER NUMBER: 7123106631

3b. SHOP: X-Ray

3c. PHONE NO: x 7360

4a. UIC SUPPORT UNIT: W03H11

4b. SUPPORT UNIT NAME: Medical Maintenance Branch

SECTION III - EQUIPMENT DATA

5. TYPE MNT REQ CODE: TI

7. NSN: 6525-01-663-1477

8. MODEL: CX-106

9. NOUN: X-Ray System, 70mm

11. SERIAL NUMBER: 3457611

24. DESCRIBE DEFICIENCIES OR SYMPTOMS: TI (classify for turn-in to DRMO) Radiation Protection Survey indicates excess exposure levels (>200 mR)

25. REMARKS: Supply condition code H

26. TECHNICAL REFERENCES: Condemned for human use. Unit rendered unusable for its intended purpose

SECTION IV - TASK REQUIREMENTS DATA

SAMPLE

SECTION V - PART REQUIREMENTS

28a. TOTAL MANHOURS: 3.8

28b. TOTAL MAN-HOURS COST $: 60.00

28c. TOTAL PARTS COST $: 0.0

SECTION VI - COMPLETION DATA

John Doe
CW2, USA
C, Medical Maint.
Branch

SECTION VII - ACTION SIGNATURES

DA FORM 2407, JUL 94

Figure 8-5. Maintenance request.

(2) Certified and noncertified cabinet x-ray systems.

(3) Noncertified laser products.

8-22. Use of condemned equipment.

a. There may be instances whereby certain medical equipment is determined unsuitable for issue and use on human patients, but may be declared suitable for use in veterinary clinics.

b. Condemned equipment cannot pose a hazard to the equipment operator if used in a veterinary clinic.

c. AR 40-61, chapter 2, states that materiel determined unsuitable for issue and use may be used for medical purposes other than originally intended, or use for nonmedical purposes, based on local determination by qualified personnel or may be directed by USAMMA or DPSC.

8-23. Repair and cannibalization of equipment reported excess.

a. Do not schedule materiel reported as excess to USAMMA for repair maintenance services or overhaul unless directed by USAMMA.

b. Do not cannibalize equipment reported as excess.

8-24. Care and preservation of excess equipment.

Commanders reporting equipment materiel as excess are responsible for the care and preservation of the item. This is to prevent deterioration pending disposal instructions from higher authority.

8-25. X-ray equipment disposed of through DRMO.

Chapter 7 of this bulletin contains instructions for disposing of x-ray systems to DRMO.

CHAPTER 9

REPAIR PARTS, TOOL CONTROL, AND TMDE

Section I. REPAIR PARTS PROCEDURES

9-1. Repair parts management.

a. Commanders of MTFs with a unit maintenance capability may authorize a limited shop stock of expendable supplies and repair parts to ensure expeditious accomplishment of the assigned maintenance mission.

b. MTFs will not maintain a Prescribed Load List (PLL) of repair parts.

c. Manage standard and nonstandard repair parts IAW the guidance provided in AR 750-1, DA Pam 710-2-2, AMEDDPAS User's Manual, and this bulletin.

d. Medical maintenance activities are authorized four types of maintenance related supplies:

(1) Shop stock. Demand supported repair parts with an AMEDDPAS management code of "DS."

(2) Bench stock. Assigned an AMEDDPAS management code of "BS."

(3) Mission essential repair parts (MERP). Assigned an AMEDDPAS management code of "ME."

(4) Minimum Order. Assigned an AMEDDPAS management code of "MO."

e. Establish an audit trail for the accountability of repair parts regardless of type. Annotate repair parts used in the course of completing a repair on the associated work order.

f. Annotate repair parts used when performing scheduled services (e.g., filters) on the Monthly Scheduled Services Work Order Listing or on DA Form 2404. These parts are not bench stock and are usually unique to an end item of medical equipment. Do not charge these parts against the equipment's cumulative expenditures but include their cost in the annual indirect material costs when computing the labor rate (paragraph 4-8).

9-2. Shop stock.

a. Selection of items for stockage is based on three demands within a control period (CP) of 180 days.

b. At least one demand must have occurred within subsequent CPs to retain a repair part on stock after initial stockage.

c. When sufficient demands accrue to qualify a part for stockage, the requisitioning objective (RO) and reorder point (ROP) must be manually calculated, using table G-16, DA Pam 710-2-2. Subsequent ROs and ROPs are automatically calculated by AMEDDPAS. The AMEDDPAS uses a stock level (SL) of 30 days and an order and ship time (OST) of 30 days in the calculation.

d. The MTFs will use table G-16, DA Pam 710-2-2 to determine the RO and ROP.

e. Review and inventory shop stock every 180 days. Document the completion of the inventory using AMEDDPAS procedures.

f. The MTF commander or his designee approves and signs the shop stock listing (AMEDDPAS report) annually. Maintain the approved listing in the maintenance shop until superseded. The approved listing is the authorization for stockage of the repair parts.

9-3. Bench stock.

a. Bench stocks are low cost, high use items used by maintenance personnel at an unpredictable rate.

(1) Bench stock includes items such as common hardware (nuts, bolts, washers), resistors, transistors, capacitors, wire, tubing, hose, rope, webbing, thread, welding rods, sandpaper, gasket material, sheet metal, seals, oil, grease, and repair kits.

(2) Class VIII repair parts kits are considered bench stock when they are purchased using one ordering catalog number and purchased as an advertised kit. An accumulation of repair parts developed by the maintenance activity is not considered a repair kit.

(3) Bench stock does not include repair parts unique to an end item of equipment, with the exception of those parts that may be in a repair parts kit.

(4) There is no dollar limitation on bench stock. However, items that exceed a unit price of $100.00 should be controlled by the Tools and Parts Attendant/Supply Clerk.

b. Bench stock will not exceed a 30-day supply. Stock those items issued in standard packs that exceed a 30-day supply and reduce through attrition.

c. Enter the operating level into AMEDDPAS (screen RPBM1-SO1). This quantity represents the bench stock level (BSL) approved by the maintenance officer or the senior maintenance manager.

d. Bench stock replenishment tags are not required. AMEDDPAS provides a density listing of bench stock used in place of the replenishment tags.

e. Bench stock costs are included in the labor rate computation for direct labor. Accounting for bench stock parts on individual work requests is required in order to provide an audit trail.

(1) Identify bench stock parts, used in the completion of a work order, as bench stock on the work order (except common hardware and bulk materiel like nuts, bolts, etc.).

(2) Annotate the parts cost column of the work order with "N/C" to indicate "No Charge." No entry is required on the AMEDDPAS maintenance record for bench stock costs.

f. The maintenance officer reviews, approves, and signs the AMEDDPAS automated bench stock listing semiannually. This becomes the medical maintenance activity's authorization to stock bench stock items.

9-4. Mission essential repair parts.

a. The MERP are repair parts unique to an item of equipment, essential to the medical maintenance mission, and do not qualify for shop stock. The MERP are required to:

(1) Ensure the functioning of life saving equipment.

(2) Support equipment for which the manufacturer will no longer supply parts.

(3) Support new equipment until demand data can be established.

b. Repair parts requiring periodic replacement (per the manufacturer's preventive maintenance schedule) during the performance of scheduled services qualify as MERP.

(1) These parts are usually identified in the manufacturer's literature as requiring replacement on a set time schedule.

(2) These parts usually do not qualify for shop stock and/or do not qualify for shop stock in the quantities required.

(3) When stocked, the end item application field of the AMEDDPAS repair parts master record will indicate "PMCS."

c. Maintenance managers are responsible for using discretion in the selection of those items deemed mission essential. Parts that are purchased locally and available within 24 hours should not be considered mission essential.

d. Keep quantities of individual MERPs to a minimum, normally one of an item. Enter this minimum quantity into AMEDDPAS as the operating level (screen RPBM1-SO1).

e. Review and inventory MERPs every 180 days. Document the completion of inventories using AMEDDPAS procedures.

f. The commander, or his designee, approves and signs the AMEDDPAS automated MERPs listing annually. Maintain the approved listing in the maintenance shop until superseded.

9-5. Minimum order.

a. MO quantities are those which are in excess of the stockage objective or are not demand supported.

b. Repair parts issued in unit pack quantities, or purchased as a result of MO requirement, are authorized to be retained in shop stock and reduced through attrition.

c. Indicate the MO and the minimum dollar order required from the vendor (e.g., MO $100.00) on the expendable repair parts master record (screen RPBM1-SO1).

d. Document MO repair parts that do not qualify for DS, ME, or BS by using an AMEDDPAS repair parts management code of "MO."

9-6. Operator replacement items.

a. It is the responsibility of the using activity (wards, clinics, etc.) to requisition operator replacement items and accessories, and not a responsibility of the supporting maintenance activity.

b. DA Pam 710-2-2 states that expendable supplies and repair parts issued to medical equipment maintenance shops are maintained only to support the maintenance activity. The primary purpose of these stocks is to give quick supply response to the repairer and to avoid repair delays. Shop stocks are only for internal shop support and are not a supply source for the maintenance activity customers.

c. The following are examples of operator replacement items:

(1) Transducers.

(2) Patient leads.

(3) Batteries accessible to the operator.

(4) Oxygen fuel cells accessible to the operator.

(5) Light bulbs.

9-7. Unsatisfactory local purchase.

Policy and procedural guidance in the local purchase of materiel and nonpersonal services is provided in AR 40-61.

9-8. Medical equipment repairer request for repair parts.

a. Use DA Form 3161 (Request for Issue or Turn-In) to request repair parts from shop supply. The use of local forms to accomplish the above is prohibited.

b. The work order requiring the repair part may be used instead of a DA Form 3161 to request repair parts that are known to be stocked in shop supply.

c. The maintenance shops WO, NCO, or equivalent position will review, approve, and initial requests for parts from the MER before forwarding the request to shop supply.

9-9. Turn-in of expendable and durable supplies.

a. Turn in excess serviceable expendable and durable supplies to the supply support activity (SSA) within 10 days of the shop stock review. DA Pam 710-2-2 contains turn-in procedures.

b. Primary batteries requiring special handling and disposal are treated as recoverable items but not necessarily reparable and are identified with a recoverability code (RCC) of "A."

(1) Dispose of batteries with a RCC of "A" through the local DRMO. Army SBs 11-6 and 11-30 contain specific guidance on disposal. Accomplish coordination for turn-in to DRMO through the SSA.

(2) Batteries containing hazardous materials, such as lithium and mercury are classified for disposal purposes as hazardous waste by the Environmental Protection Agency (EPA).

(3) Magnesium batteries have been determined to be nonhazardous solid waste for disposal purposes; however, they are not to be accumulated and disposal must be controlled.

(4) There are other batteries also holding a RCC of "A" that require special handling and disposal. They are zinc, silver chloride, certain lead acid batteries, and certain nickel cadmium (NICAD) batteries.

Section II. TOOL ACCOUNTABILITY

9-10. Tool control procedures.

a. These procedures are for internal control of hand tools once issued to the medical maintenance activity. They do not eliminate the responsibility of the PBC to properly issue these items IAW AR 710-2.

b. MERs will use only tools and TMDE approved by the activity's senior maintenance manager and/or prescribed by the government in the repair of medical equipment. This does not preclude civilian contract repairers from using their tools and TMDE while performing contractual repairs.

c. The AR 735-5 states that all tools (Federal supply classes 5110, 5120, 5130, 5133, 5136, 5140, 5160, 5210, 5220, and 5280) with a unit price greater than $5.00 are classified as durable property that will be controlled and responsibility specifically assigned.

d. Durable hand tools with a unit of issue containing more than one item (e.g., box, package, dozen, etc.), and the cost of a single item is less than $5.00, will be treated as an expendable item at the user level, even though coded as durable in the AMDF.

e. Control durable items that are components of sets, kits, or outfits using hand receipt annexes or component lists. Individual MER tool kits are normally issued by the PBO to the senior maintenance managers. The senior maintenance manager then issues the tool kits by sub-hand receipt to the individual MER using a component hand receipt (DA Pam 710-2-1) or a hand receipt annex (DA Pam 710-2-1).

f. Durable items that are not components of sets, kits, or outfits will be controlled using hand receipts and sub-hand receipts (DA Pam 710-2-1). Consider controlling these durable items using the tool room procedures described below.

(1) The senior maintenance manager will appoint the tool room custodian in writing. The tool room custodian is responsible for all tools contained within the tool room. Tools, regardless of the accounting requirements code (ARC) assigned, issued from a tool room become the personal responsibility of the recipient (user).

(2) The senior maintenance manager will provide the tool room custodian with a list of personnel authorized to draw tools from the tool room. Allow only those personnel listed to sign out tools.

g. Use a log or temporary hand receipt for issuing tools from a tool room for 1 day or less. Medical maintenance activities will use DA Form 5519-R (Tool Sign Out Log/Register) when a log is determined to be the preferred method. DA Pam 710-2-1 contains instructions for completing the DA Form 5519-R.

h. Issue tools for longer than 1 day, but less than 30 days, on a temporary hand receipt (DA Form 3161).

(1) One copy of the temporary hand receipt should be filed in suspense by recipient's last name; one copy in suspense by the tool's NSN, national item identification number (NIIN), or nomenclature sequence; and one copy will be retained by the recipient.

(2) Destroy all copies of the hand receipt when the tools are returned.

i. Issue tools for longer than 30 days on a permanent hand receipt (DA Form 2062, Hand Receipt/Annex Number).

9-11. Tool inventory.

Inventory all tools on a semiannual basis. Account for lost, damaged, or destroyed nonconsumable tools issued through a tool room IAW AR 735-5.

9-12. Tool security.

Secure and control hand tools, tool sets, tool kits, and shop equipment according to the physical security standards of AR 190-51.

Section III. TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT

9-13. General.

a. The purpose of TMDE is to evaluate the operational condition of a system and to identify or isolate actual or potential malfunctions. Sufficient modern TMDE must be available in the Medical Maintenance Branch to ensure accurate calibration of equipment.

b. The TMDE does not include any item that displays, measures, or indicates a physiological parameter.

c. Requirements for TMDE are controlled in accordance with AR 750-43.

d. Calibrate TMDE used in the repair of medical equipment at the proper intervals. The TMDE not having a current calibration will not be used to perform CVC services on medical equipment.

9-14. Requests for test, measurement, and diagnostic equipment.

a. Activities will comply with the acquisition requirements of AR 750-43.

b. Route request through USAMMA, 1423 Sultan Drive, Suite 100, ATTN: MCMR-MMM, Fort Detrick, MD 21702-6001, to the address listed in subparagraph c below.

c. Receipt of acquisition approval from the U.S. Army TMDE Activity, ATTN: AMXTM-LM-A, Redstone Arsenal, AL 35898-5400, is necessary before requisitioning any item of TMDE.

d. The AR 750-43 lists those items exempt from acquisition approval. Preventive Medicine activities utilize many items of testing equipment that is exempt from the approval process, e.g., air flow meters, sound level meters, etc.

APPENDIX A

REFERENCES

A-1. DOD publications.

DOD 4160.21-M	Defense Reutilization and Marketing Manual
DODI 6015.17	Planning and Acquisition for Military Health Facilities

A-2. Army regulations.

AR 25-1	The Army Information Resources Management Program
AR 25-30	The Army Integrated Publishing and Printing Program
AR 25-400-2	The Modern Army Recordkeeping System
AR 37-49	Budgeting, Funding, and Reimbursement for Base Operations Support of Army Activities
AR 40-2	Army Medical Treatment Facilities: General Administration
AR 40-5	Preventive Medicine
AR 40-14	Occupational Ionizing Radiation Personnel Dosimetry
AR 40-61	Medical Logistics Policies and Procedures
AR 190-51	Security of Unclassified (Sensitive and Nonsensitive) Army Property
AR 310-25	Dictionary of United States Army Terms (Short Title: AD)
AR 335-15	Management Information Control System
AR 385-10	Army Safety Program
AR 600-9	The Army Weight Control Program
AR 700-4	Logistics Assistance Program
AR 700-15	Packaging of Materiel
AR 700-68	Storage and Handling of Compressed Gases and Gas Liquids in Cylinders, and of Cylinders
AR 708-1	Cataloging and Supply Management Data
AR 710-2	Supply Policy Below the Wholesale Level
AR 725-50	Requisitioning, Receipt, and Issue System
AR 735-5	Policies and Procedures for Property Accountability
AR 750-1	Army Materiel Maintenance Policy and Retail Maintenance Operations
AR 750-43	Army Test, Measurement and Diagnostic Equipment (TMDE) Program

A-3. Pamphlets.

DA Pam 40-501	Hearing Conservation
DA Pam 700-20	The Army Test, Measurement and Diagnostic Equipment Register
DA Pam 710-2-2	Supply Support Activity Supply System: Manual Procedures

DA Pam 710-4	Management of Excess Materiel and Materiel Returns
DA Pam 738-750	The Army Maintenance Management System (TAMMS)

A-4. Technical bulletins.

TB MED 1	Storage, Preservation, Packaging, Packing, Maintenance and Surveillance of Materiel -Medical Activities
TB MED 7	Maintenance Expenditure Limits for Medical Materiel
TB MED 523	Control of Hazards to Health from Microwave and Radio Frequency Radiation and Ultrasound
TB 8-6515-001-35	Calibration and Repair of Audiometric Equipment
TB 38-750-2	Maintenance Management Procedures For Medical Equipment
TB 43-180	Calibration and Repair Requirements for the Maintenance of Army Materiel
TB 740-10	Quality Control Depot Storage Standards. Appendix M, Medical Supplies
TB 750-25	Maintenance of Supplies and Equipment. Army Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Repair Support Program

A-5. Supply bulletins.

SB 8-75-MEDCASE	Army Medical Department Supply Information
SB 11-6	Primary Battery Supply and Management Data
SB 11-206	Personnel Dosimetry Supply and Service for Technical Radiation Exposure Control

A-6. Techical manuals.

TM 8-6500-001-10-PMCS	Operator's Preventive Maintenance Checks and Services for Reportable Medical Equipment (consolidated)
TM 8-6670-001-14&P	Scale, Person, Weighing

A-7. DFAS publications.

DFAS-IN Reg 37-1	Finance and Accounting Policy Implementation
DFAS-IN Manual 37-100-FY	The Army Management Structure (AMS)

A-8. Miscellaneous publications.

ADSM 18-HL3-RPB-IBM-UMD System	Automated Data Systems Manual, Army Medical Department Property Accounting (AMEDDPAS)
CTA 50-900	Clothing and Individual Equipment
NFPA 99	National Fire Protection Association, Healthcare Facilities
21 CFR Subchapter J	Code of Federal Regulations, Radiological Health
29 CFR 1910	Code of Federal Regulations, General Industry Standards

MEDCOM Reg 10-1	Organization and Functions Policy
MEDCOM Reg 11-5	Logistics Operating Instructions (Standing Guidance, Volume II Health Services Command (HSC) Operating Program)
MEDCOM 40-21	Health Service Regions/Health Service Areas

A-9. Referenced forms.

DA Form 2062	Hand Receipt/Annex Number
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2407	Maintenance Request
DA Form 2407-1	Maintenance Request Continuation Sheet
DA Form 2409	Equipment Maintenance Log (Consolidated)
DA Form 3161	Request for Issue or Turn-In
DA Form 3318	Records of Demands - Title Insert
DA Form 3953	Purchase Request and Committment
DA Form 5519-R	Tool Sign Out Log/Register
DA Form 5624-R	DC Defibrillator Inspection Record
DA Label 175	Defibrillator Energy Output Certification
DD Form 1155	Order for Supplies or Services
DD Form 1577	Unserviceable (Condemned) TAG - Materiel
DD Form 2163	Medical Equipment Verification/Certification
DD Form 2164	X-ray Verification/Certification Worksheet

A-10. Prescribed form.

Form FDA 2579	Report of Assembly of a Diagnostic X-ray System (Forms FDA 2579 are available, free of charge, from Forms and Publications Distribution Center (HFA-268), U.S. Public Health Service, 5600 Fishers Lane, Rockville, MD 20857.)

APPENDIX B

SPACE REQUIREMENTS
MEDICAL EQUIPMENT MAINTENANCE SERVICE

(NSF = Net Square Feet)

Chief, Medical Maintenance	100 NSF for Chief. 80 NSF for each additional authorized officer
NCO	100 NSF for NCO plus 80 NSF for each additional authorized administrative employee
Files/Records Space	50 NSF for up to 200-bed facility. Add 5 NSF per 100 beds over 200. Where regional responsibilities exist, include beds for satellite activities in computing space.
Reference Library	20 NSF
Work Stations	100 NSF when 3 or less technicians assigned. 70 NSF with 4 or more technician assigned.
Common Use Work Space	300 NSF for up to 200-bed facility. Add 100 NSF per additional 100 beds over 200 beds. Where regional responsibilities exist, include beds for satellite activities. Space not required for facilities with three or less technicians authorized.
Parts Room	1 NSF per bed. Minimum 200 NSF. Where regional responsibilities exist, include beds for satellite activities in computing space required.
Equipment Holding Area	200 NSF for up to 100-bed facility. Add 50 NSF per additional 100 beds over 100. Where regional responsibilities exist, include beds for satellite activities in computing space required. Space not required for facilities with three or less technicians authorized.
Electronics Repair/Calibration	160 NSF for up to 200-bed facility. Add an additional 80 NSF per additional 100 beds over 200 beds. Where regional responsibilities exist, include beds for satellite activities in computing space required. Space not required for facilities with three or less technicians authorized.
Equipment Receiving Area	130 NSF for up to 200-bed facility. Add 25 NSF per additional 100 beds over 200 beds. Where regional responsibilities exist, include beds for satellite activities in computing space required. Space not required for facilities with three or less technicians authorized.

If the logistics support building is not located contiguous to the medical facility, program the following within the MTF

Work Station	100 NSF within medical facility.
Storage	100 NSF within medical facility.
Equipment Holding Area	100 NSF within medical facility.

NOTE

These areas must be coordinated and approved by the activity safety manager to ensure no fire/life safety hazards are imposed by any of these support areas.

APPENDIX C

MAINTENANCE STANDING OPERATING PROCEDURES

C-1. Internal standing operating procedures.

Each Medical Maintenance Branch will publish an internal SOP that, at a minimum, addresses each of the following areas.

a. The receipt, processing, repair, and disposition of medical equipment, to include work order reconciliation and follow-up procedures.

b. PMCS.

c. Calibration of TMDE.

d. Inspection and condition coding of medical equipment.

e. MEDCASE program.

f. Hospital electrical safety.

g. Shop safety to include ionizing and nonionizing radiation hazards, use of power tools, etc. (Update and approve annually.)

h. Repair parts and tool accountability.

i. Quality control and assurance.

j. Recurring reports.

k. Support to satellites.

l. JCAHO inspection and test requirements listed in the PTSM standards chapter of the accreditation manual.

m. Medical equipment CVC services.

n. Procedures, responsibilities, and document work flow pertaining to AMEDDPAS, to include establishment and maintenance of a database.

o. Procedures for completing Form FDA 2579 and proper disposition of forms.

p. Infection control (bi-annual review and approval).

q. Maintenance of MMBP equipment.

r. Reimbursement procedures.

s. HAZCOM.

t. Lockout/tagout.

u. SMDA.

C-2. External standing operating procedures.

Included in the external SOP should be:

a. Acquiring routine and emergency services.

b. Normal operating hours for receiving equipment for repair and picking up equipment which has been repaired.

c. Office telephone numbers of key maintenance personnel.

d. Instructions for completing customer provided data on the work request.

APPENDIX D

DESK REFERENCE MANUALS

D-1. General.

a. At a minimum, three desk reference manuals should be considered.

(1) Repairer's Manual

(2) Repair Parts/Tool Room Manual

(3) Work Order Desk/AMEDDPAS Input Manual

b. To be an effective tool, desk reference manuals require constant updating. The manuals will only be as good as the emphasis the senior maintenance manager and supervisor places on them.

c. Desk reference manuals should include detailed explanations of local procedures established to meet regulatory requirements.

d. While the repair parts/tool room and work order/AMEDDPAS manuals could be located in the area they pertain to, the repairer's desk reference manual should be issued to the repairer as part of their individual tools.

D-2. Suggested contents.

To illustrate those items to consider for a desk reference manual, the following is a listing that could make up the desk reference manual for the MER:

a. Copy of the shop's SOP.

b. Copy of the local commander's maintenance directive.

c. A listing of wards and clinics.

(1) Telephone numbers.

(2) Scheduled services base dates.

(3) Area maintenance priorities.

(4) Names of NCOs.

d. An explanation of codes needed when performing a TI on a new item of medical equipment required to complete the local work sheets for AMEDDPAS.

e. Copies of appropriate chapters and appendixes of this bulletin.

f. Civilian procured repairer handbooks that include formulas, conversion factors and tables, electronic symbols, drill and tap sizes, medical terminology, etc.

g. Sample forms the repairer will be expected to complete.

(1) Parts request (DA Form 3161).

(2) Work request (DA Form 2407 or automated request).

(3) Monthly man-hours worksheet (fig 4-1).

h. A Julian date calendar.

i. Maintenance expenditure limit graph from TB MED 7.

j. A good index so the above items can easily be located by the repairer when needed.

D-3. Scope.

The only restriction on what is included in your desk reference manuals will result from the needs of the management and supervisory staff of the Medical Maintenance Branch.

APPENDIX E

JOINT COMMISSION ON ACCREDITATION OF HEALTH-CARE ORGANIZATIONS

E-1. Supplemental information.

The Medical Maintenance Branch internal SOP will include detailed procedures that delineate how much JCAHO standard under the environment of care (EC) is met. This appendix should be used with additional local procedures unique to that activity.

E-2. Standards.

The following are the medical equipment management standards from the EC portions of the current JCAHO accreditation manual.

E-3. JCAHO standard for management plan.

The organization has a documented management plan for the environment of care that considers medical equipment.

a. JCAHO intent. The documented management plan includes the following.

(1) A comprehensive medical equipment management program.

(2) Procedures for selecting and acquiring medical equipment.

(3) Criteria used to select medical equipment for program inclusion.

(4) Written inspection, test, maintenance, and education policies for medical equipment and device maintainers and users.

(5) Monitoring policies for hazard recalls.

(6) Policies for compliance with the FDA SMDA.

(7) Procedures to report and investigate medical equipment program problems, failures, and user errors that adversely affect patient care or safety.

(8) The annual effectiveness evaluation of the objectives, scope, performance, and effectiveness of the medical equipment management program.

(9) If it is not desired to develop a risk criteria policy to determine medical equipment program inclusion, all patient care and electrical medical equipment may be listed on the inventory.

b. AMEDD comments.

(1) Equipment management in healthcare organizations continues to evolve as the risks associated with equipment are better understood. The EC standards recognize several approaches to equipment management.

(2) The equipment management standards treat equipment management as a risk-based function. They provide the opportunity for equipment managers to evaluate risks associated with equipment and determine what factors, if any, need monitoring to assure proper performance.

(3) These standards also extend the maximum inspection interval to 1 year to provide greater flexibility in dealing with varying levels of risk. The education requirement addresses the reality that, more than 90% of the time, satisfactory equipment performance depends on a trained operator.

(4) In addition, these standards also require adverse equipment experience to be factored into the quality assessment and improvement, risk management, and safety management functions. This includes evaluation of the organization's activities related to the SMDA of 1990.

(5) Compliance with this standard will be determined by reviewing the documented policies and procedures and interviewing MTF staff.

E-4. JCAHO standard for orientation and education to medical equipment.

The organization has an orientation and education component that provides specific information to individuals on the proper processes for interacting with the environment of care related to medical equipment.

a. JCAHO intent.

(1) The orientation and education component pertaining to medical equipment addresses

(a) Medical equipment capabilities, limitations, and special applications for users.

(b) Basic operating and safety procedures that medical equipment users should follow in performing their responsibilities.

(c) Proper emergency procedures when medical equipment fails.

(d) Information and skills required by medical equipment maintainers in order to perform assigned responsibilities.

(e) Organizational procedures to report medical equipment management program problems, failures, and user errors.

(2) Additional expectations include the following.

(a) Staff who use medical equipment are now expected to have training that explains the capabilities and limitations of the devices. This includes physicians and nursing and ancillary clinical staff who use the equipment.

(b) Staff must have training that describes procedures if equipment fails. This might include using hand operated devices or battery back-up equipment.

b. AMEDD comments.

(1) Equipment training issues will be emphasized. It is essential that a team approach be used to create the training documents. Personnel involved should include, but are not limited to, representatives from nursing, resource management, training, and logistics.

(2) Annual continuing education should primarily be based on the organization's ongoing experience. It should address pieces of equipment and operating procedures that are new, have changed significantly during the year, or have had a series of failures or user errors associated with them. This training can take place at a set time or it can occur on an ongoing basis. The process must be documented so that the effectiveness of the education can be monitored as part of organization-wide quality assessment and improvement activities.

(3) If an ongoing assessment of experience indicates that no significant changes or hazards occurred during the year, documentation of the assessment can be maintained as evidence of compliance with the intent of EC 1.3.6. However, when the assessment of experience indicates a need for training, it must be conducted and documented.

E-5. JCAHO standard for emergency procedures.

The organization has emergency procedures than can be followed when components of environment of care are stressed or fail.

a. JCAHO intent.

(1) The emergency procedures for medical equipment disruptions and/or failure address

(a) Specific procedures to be implemented when medical equipment fails.

(b) The need and methods for emergency clinical interventions when medical equipment fails.

(c) The availability of and access to spare equipment when event of equipment failure.

(d) Procedures for obtaining repair services.

(2) Unlike the emergency preparedness of equipment management standards under the PTSM umbrella, the EC medical equipment standard requires many additional written plans for medical device failure. For the first time the survey team will expect pre-determined clinical responses to equipment failures and a list of back-up equipment that would be available, if needed. In addition, staff must be informed of the proper procedures to obtain medical equipment repair services on a 24-hour, 7 day-per-week basis. This might require a combination of in-house staff who may be on-call as well as procedures to notify third party or OEM equipment service providers.

(3) The survey team will determine the level of compliance by reviewing the written medical equipment policies and procedures and by interviewing selected hospital staff.

b. AMEDD comments. Orient all clinical providers on the procedures for obtaining maintenance support during normal duty hours and how to reach the on-call maintenance support after duty hours. Ensure that the clinical staff knows how to obtain MEDSTEP assets, if available. Include this information in the commander's maintenance directive.

E-6. JCAHO standard for performance measurements.

The organization has established performance standards that measure the effectiveness of environment of care management programs. The following management program, as needed, have performance standards: Medical Equipment Management.

a. JCAHO intent.

(1) The organization has established performance standards that assist the medical equipment management program in promoting the safe, effective and efficient use of medical equipment in the environment of care. These performance standards include those that access:

(a) Staff knowledge and skill requirements regarding their role in the medical equipment safety management program and their expected level of participation.

(b) Monitoring and inspection activities.

(c) Routine and emergency incident reporting procedures, including when and to whom such reports are to be communicated.

(d) Inspection, preventive maintenance, and testing of medical equipment.

(2) The survey team will determine the level of compliance by reviewing the documented performance measures and interviewing staff with regard to the proper use of medical equipment.

b. AMEDD comments.

(1) Although numerical indicators are normally used to measure performance, other methods are also helpful. For the performance standards listed above some sample performance measures are listed.

(a) Answers given by staff related to medical equipment during Command Supply Discipline Program (CSDP) visits. Also, monitoring of recurrent user errors by equipment type, problem, or location of use.

(b) Summary of the number of problems found and corrected during the scheduled preventive maintenance tests.

(c) Tracking of incident reports and device recalls that relate to medical equipment.

(d) The percentage of equipment that functions properly during routine use by the clinical staff. The percentage of completion of the services scheduled each month.

(2) Do not establish performance measures that are more stringent than those required by regulatory or oversight agencies.

E-7. JCAHO standard for orientation, education, and training for users.

The organization has oriented and educated individuals who can describe and/or demonstrate through interviews the proper processes for interaction with the environment of care. The following subject, as appropriate is reviewed: medical equipment.

a. JCAHO intent.

(1) A sample that medical equipment users can describe and/or demonstrate

(a) The basic capabilities, limitations, and special applications of the equipment

(b) The basic equipment operation and safety procedures that are used in performing their responsibilities

(c) The proper emergency procedures implemented when equipment fails

(2) A sample that medical equipment maintainers can describe and/or demonstrate the information and skills necessary to perform their assigned maintenance responsibilities

(3) Medical equipment users and maintainers can describe the procedure to report user errors and failures.

b. AMEDD comments

(1) Effective implementation of the standards will be determined through staff interviews. Because the education and training programs should be based upon the program design, staff answers should accurately reflect the organization's policies and procedures.

(2) For the interviews, medical equipment users and maintainers may be asked questions similar to those below.

(a) What are the limitations of a specific item of equipment?

(b) What do you do if the central station goes down?

(c) How do you obtain maintenance services when an item of equipment malfunctions? After normal duty hours?

(3) Medical equipment users and maintainers should be prepared to demonstrate and explain equipment related skills to the surveyor.

E-8. JCAHO standard for implementation of management plans.

The organization implements, as designed, the documented management plans and performance standards as required, including those that address medical equipment

a. JCAHO intent.

(1) The organization implements, as designed, the documented management plan(s) and performance standards for medical equipment. These standards require:

(a) A documented medical equipment management plan

(b) Training for medical equipment users/maintainers.

(c) Written procedures for medical equipment failures or disruptions

(2) These standards were required under the 1994 PTSM guidelines for PL.3. Although the new EC standards are re-edited, virtually all of the same standards apply. Exceptions include the new requirements for the adoption of performance standards for medical equipment

(3) Compliance with this standard will be evaluated by the building and grounds tour which will include a review of medical equipment used by the staff. A review of documentation will include risk management and incident reports related to medical equipment, equipment recalls, inspection and maintenance schedules, and reports. In addition, a variety of clinical and ancillary clinical staff will be interviewed to determined their knowledge of medical equipment operation and emergency procedures in the event of equipment failure.

b. AMEDD comments. Self-explanatory.

E-9. JCAHO standard for maintenance, testing, and inspection of medical equipment.

The organization implements maintenance, testing and inspection procedures to support the operational reliability and to manage risks of environment of care components. The following, as appropriate, are maintained, tested, or inspected: medical equipment

a. JCAHO intent

(1) The organization maintains, tests, and inspects medical equipment and has:

(a) A current, accurate, unique inventory of all equipment in the medical equipment management program, regardless of ownership.

(b) Documented evidence that each piece of equipment in the program is tested for performance and safety prior to initial use and at least annually thereafter.

(c) Documented evidence that preventive maintenance and inspection of medical equipment is implemented on a schedule developed from current organizational experience as determined by the ongoing monitoring and evaluation process.

(d) Documented evidence of appropriate performance testing for all sterilizers used in the organizations.

(2) This standard was required under the 1994 PTSM guidelines for PL 3. Although the new EC standards are re-edited, many of the same standards apply. A significant exception is the new requirement for documentation of sterilizer testing. In addition, all references to non-clinical equipment has been dropped — the new EC standards apply only to medical devices.

(3) Verification of compliance by the surveyor will include a review of the equipment inventory, equipment label checks during the building tour, and analysis of the preventive maintenance schedules and test and repair documentation.

b. AMEDD comments.

(1) It is the function of maintenance manager to establish procedures for verifying and purifying the AMEDDPAS maintenance database. Local procedures must be written that describe how this management function will be accomplished. The use of AMEDDPAS' data query is highly suggested.

(2) The unique inventory of medical equipment is separable from inventories of other types of equipment (office furniture, data processing equipment, etc.) by maintenance designating the equipment as subsystem "B" and an additional input of an equipment type code of "M."

(3) All equipment will be tested prior to initial use and at least annually thereafter.

(4) The initial testing will be documented in the AMEDDPAS database with a work order action code of "TI." This entry for subsystem "B" items of equipment is understood to mean that the equipment was:

(a) Given a complete TI and operational testing.

(b) PMCS, CVC, and electrical safety tests where performed as required.

(c) Completely operational and safe for clinical use.

NOTE

It is not necessary to initiate a manual scheduled work order to reflect the PMCS, CVC, and/or safety inspection performed.

(5) The completion of periodic scheduled testing will be documented on the AMEDDPAS automated Monthly Scheduled Work Order Listing. Additional documentation will be completed as prescribed by AR 750-1 and this bulletin.

(6) All clinical equipment is included in our maintenance program, but only selected items of medical equipment are individually managed in the AMEDDPAS database. These individually managed items are selected from the following considerations:

(a) Every item of medical equipment will be considered for inclusion into the equipment database when the initial technical inspection is performed prior to its use.

(b) Consider all electrical equipment.

(c) Consider all equipment intended for use in critical patient care areas.

(d) Include all equipment for which the manufacturer recommends periodic scheduled services.

(7) Equipment not managed individually is managed and serviced under each SMAC area group managed "Z" MMCN.

APPENDIX F

THE MONTHLY MAINTENANCE PERFORMANCE REPORT

F-1. Performance evaluations.

The AMEDDPAS MMPR is one of the most critical tools a maintenance manager has to evaluate the overall performance of the maintenance operation. An MMPR that contains inaccurate data or is missing data is of limited value.

F-2. Additional information.

A copy of the current TDA must always be on-hand in the medical maintenance activity.

a. The numbers for required and authorized direct labor and indirect labor personnel annotated on the MMPR will come from the TDA.

b. The on-hand figures entered on the MMPR will reflect the numbers of personnel physically present on the last duty day of the report month.

F-3. Definitions.

a. Reporting period. Each month consists of one reporting period, first through the last day of the month.

b. Work center.

(1)The designated functional area which will report man-hours expended, or in which man-hours are expended by maintenance personnel.

(2) Each medical maintenance activity, regardless of size, contains at least two functional internal work centers.

(a) A direct labor work center (hands-on equipment service).

(b) An indirect labor work center (management, administration, repair parts, etc.).

c. Direct labor. All labor expended on equipment, component, or part for which a work center is given maintenance repair responsibility will be charged to this code as productive direct labor.

d. Assigned man-hours. The number of man-hours available to a work center is based on the number of personnel assigned, multiplied by the number of normal working days in a specified period, times eight hours per day. (Normal working days are Monday through Friday except official Federal holidays - Locally designated training holidays are not official Federal holidays.)

(1) The man-hours for direct labor personnel who were departing or arriving, and were not available for the entire report month, will be added to the total assigned hours. Their man-hours will only reflect those days they were present for duty in the maintenance branch (in and out processing is present for duty).

(2) It is not necessary to collect assigned hours for indirect labor personnel.

e. Overtime. Overtime will be based upon a 40-hours week (8 hours per day, 5 days per week) within the reporting period. Man-hours expended in excess of this standard, whether or not planned or scheduled and for which no compensatory time-off is given, will be considered overtime.

f. Borrowed hours. Direct labor man-hours utilized by the maintenance activity from sources other than assigned in-house direct labor assets.

(1) Report hours of direct labor obtained from active Army Table of Organization and Equipment, Reserve, or National Guard units as borrowed man-hours. We recommended that you reflect only those hours logged on a maintenance request (scheduled or unscheduled).

(2) Do not carry individuals supplying these borrowed hours as assigned on-hand personnel.

(3) Report hours for scheduled and unscheduled service performed by the maintenance officer, maintenance NCO, wage supervisor, or other qualified indirect labor individual, as borrowed hours.

g. Loaned hours. Loaned hours are direct labor man-hours lost from the direct labor work center. The following are examples of loaned hours:

(1) Detailing a direct labor individual to act as work order clerk or repair parts clerk, etc.

(2) Loaning a direct labor individual to the MTF headquarters (HQ) to be the commander's driver.

(3) A direct labor individual performing duties outside the maintenance of medical equipment, as directed by a logistics chief. Do not confuse loaned hours with ancillary services.

(a) If the requirement is for one job, it is documented on an ancillary work order, i.e., the Chief of Logistics directs you to assemble the hospital commander's new office chair.

(b) If the requirement is for a time period (usually in excess of one week), it is loaned hours, i.e., the Chief of Logistics requires one MER to assist the facility engineer in a survey of life safety code violations.

(4) All man-hours expended by direct labor individuals to perform administrative and management functions.

h. Nonproductive labor. Direct labor man-hours expended for which no recordable work is produced. Add generated nonproductive man-hours totaling three-tenths of an hour or less to the work in progress.

(1) Lag, awaiting, assistance. Man-hours lost due to lack of assistance. For example: lag, awaiting quality control inspection, specialist, or lag, awaiting assistance in starting up or turning off equipment requiring more than one operator, etc.

(2) Lag, awaiting equipment, tools, or facility space. Man-hours lost waiting for equipment, tools, or facility space. Any delay in collection or issue of tools and equipment, will be charged.

(3) Lag, awaiting transportation. Man-hours lost due to lack of transportation to or from a job.

(4) Lag, weather. Man-hours lost due to inclement weather when work is interrupted and personnel remain at the duty station.

(5) Lag, parts. Man-hours lost due to the lack of parts, or waiting for parts to be delivered.

(6) Lag, break. Man-hours lost due to authorized breaks taken during the day in excess of three-tenths of an hour.

i. Productive indirect labor. The man-hours expended by direct labor personnel that are not intended to be captured on work orders. These are necessary functions performed by direct labor personnel that contribute to the overall operation of the maintenance activity. Commonly, productive indirect hours would include, but would not be limited to:

(1) Alert duty. All man-hours expended while awaiting on alert when no work is being accomplished will be charged as alert duty.

(2) Maintenance on-installation technical and/or proficiency training. Man-hours expended in the following manner will be charged to this type of training:

(a) Attending lectures, movies, and job demonstrations pertaining to skill development, career progression, or cross training in or for a specific MOS.

(b) Technical publication familiarization. (This does not include the use of technical publications during actual work.)

(c) Military equipment or vehicle operator testing (written or oral).

(d) Receiving formalized instruction (including contractor technician) or familiarization in the operation and maintenance of tools and equipment.

(e) Preparing for and giving classroom or group instruction.

(3) Maintenance meetings. All time spent in maintenance meetings, such as maintenance scheduling, and in those meetings called by the commander or maintenance supervisor to discuss maintenance, production, supervisory matters, etc.

(4) Plant equipment maintenance. All man-hours expended in repair, upkeep, and servicing of maintenance equipment (when not directed by a DA Form 2407). Normal servicing and cleaning at the end of a job or shift will be charged to the work order.

(5) Cleaning and policing. Man-hours expended in general housekeeping, including cleaning and policing around industrial areas and shop; removal of snow from industrial areas, etc. The routine cleaning or policing at the end of a job or a shift will be charged to the work order.

(6) Vehicle maintenance. Man-hours expended in operator maintenance of vehicles assigned to medical maintenance.

(7) Researching information on repair parts not connected with an open work order.

j. Duty absence. Direct labor man-hours performed away from the work center that cannot be captured on work orders. Duty absence includes:

(1) Military training. Direct labor man-hours (military or civilian) expended in nontechnical training. This includes personnel inspection, parades, warfare lectures, character guidance, commander's call, demonstrations on safety, security, or fire prevention, organizational training requirements, etc.

(2) Organization or installation duties. Man-hours lost due to pay call, barracks orderly, furnace stoker, barracks duty, fire guard, mess checker, KP, athletic program, military court, maintenance of organization area, appointment with commander, first sergeant, personnel office, officers of the day, etc. If the individual is given compensatory time off for having performed these duties on an overtime basis, the compensatory time off will be charged as nonduty absence.

(3) TDY, for maintenance technical training. Man-hours spent in off installation technical training.

(4) Personnel processing. Man-hours expended processing in or out of the assigned organization, including interim processing while assigned to the work center. Processing includes reporting through personnel (military and civilian), incoming or outgoing medical processing, meeting the commander, reporting through maintenance officer, etc.

k. Nonduty absence. Direct labor man-hours that are not available to the work center.

(1) Compensatory time off for overtime. Direct man-hours given during normal duty hours as time off to compensate for overtime for which no overtime was claimed.

(2) Excused from duty. Man-hours excused from duty while on official pass or record training holidays called by the MTF or Installation Commander.

(3) Official leave. Man-hours spent on official leave.

(4) Sick leave, civilian. Man-hours charged to civilian sick leave.

(5) Medical absence. Man-hours spent on sick call, confined in the hospital or sick in quarters, dental treatment; blood donations, physical examinations, immunizations, etc.

(6) Personal affairs. Man-hours will be charged only when an individual requests permission to leave his place of duty to take care of semiofficial or personal matters. Some examples are: visits to PX, commissary, barbershop, laundry, auto registration, library, post office, legal office, clothing sales store, chaplain, Civilian Personnel Office, Red Cross, etc.

(7) Absent without leave (AWOL) or confined. Unauthorized absence from maintenance duty, including tardiness and man-hours lost as a result of an individual being retained in either civil or military custody until he is dropped from assignment, or returns to the work center.

(8) Leave without pay (LWOP). Authorized or unauthorized absence from maintenance duty by civilian personnel in a LWOP status.

(9) Injury on job (civilian). Man-hours spent on authorized leave as a result of a job related traumatic injury as defined in Public Law 93-416, and AR 385-40.

l. Travel time. Man-hours spent in traveling to, from, or between jobs, which exceeds three-tenths of an hour will be charged as travel time. Travel time which takes three-tenths of an hour or less, will be charged to the work order. Record time expended traveling to and from an official military TDY work site at a satellite activity as travel time regardless of the length of stay at the work office.

m Ancillary services. Those jobs not unique to the medical maintenance mission performed by direct labor personnel. These services cannot be charged to a piece of medical equipment, and contribute little or nothing to the overall medical equipment maintenance operation. Some examples of ancillary miscellaneous services are:

(1) Performing an oxygen quality assurance check.

(2) Hanging pictures in the hospital.

(3) Assembling office furniture.

(4) Installation of non-medical equipment

F-4. Personnel utilization index.

The personnel utilization index measures how efficiently and effectively a maintenance shop's direct labor assets are used

a Compute the utilization index by dividing the total number of expended man-hours by the net direct available man-hours on the MMPR.

b An acceptable utilization index is between 95 and 100 percent.

F-5. Remarks.

The remarks section on page 4 of the MMPR is extremely important. Document unusual entries or changes that appear on an MMPR

a At a minimum, the remarks section should

(1) Note all arrivals and departures of personnel during the report month to include the dates

(2) Explain all borrowed direct labor man-hours

(3) Explain all loaned direct labor hours

(4) Explain all nonproductive man-hours

(5) Explain productive indirect hours that exceed one-half hour per direct labor individual per day

(6) Explain all civilian duty absence.

(7) Note all training holiday hours

(8) Explain utilization indexes above 100 percent or below 95 percent

(9) Explain all scheduled service completions which fall below the minimum acceptable performance level

(10) Explain all miscellaneous ancillary hours.

b This information can be of great value to the maintenance manager when the need arises to explain or justify data appearing on an MMPR or to justify manpower requirements

c Detailed remarks enhance the usefulness of the MMPR to the maintenance manager in evaluating the operation of the maintenance activity

d If space on the MMPR is insufficient, use plain paper for additional remarks.

APPENDIX G

RISK-BASED ASSESSMENT

G-1. Purpose.

The purpose of risk-based assessment is to provide maintenance managers with a risk-based assessment mechanism for tailoring scheduled services programs to resources so as to achieve reasonable goals.

G-2. Background.

a The JCAHO requires that each MTF have a medical equipment management program.

b Our goal is to service 100 percent of all of the equipment in our programs. Reduced staffing, as a result of personnel turbulence, the resizing of forces, or personnel shortfalls caused by other events, may present you, the maintenance manager, with a need to adjust the frequency at which you perform scheduled services. Keep the following in mind as you analyze your maintenance program.

(1) You should not extend the service interval for an item of medical equipment beyond the minimum recommended or required by the equipment manufacturer unless concurrence has been obtained from the manufacturer/vendor.

(2) You must still comply with the requirements of regulatory and other oversight agencies such as:

(a) Department of Defense.

(b) Department of the Army.

(c) Environmental Protection Agency.

(d) Occupational Safety and Health Administration.

(e) State Agencies.

(f) Joint Commission on Accreditation of Healthcare Organization.

(g) College of American Pathologists.

(h) American Association of Blood Banks.

(3) Any reduction you make in the frequency of scheduled services performance should not degrade equipment readiness.

(4) A reduction should not increase the risk of legal action for negligence, etc.

(5) Any change made to the scheduled services program must be cost effective. Reductions in scheduled services should not result in a disproportionate increase in repair costs.

(6) Proposed changes must be approved by the MTF safety committee prior to implementation.

(7) The concurrence of equipment users/operators should be obtained before any reduction in equipment services is implemented.

G-3. Instructions for using tables.

a Figures G-1, G-2, and G-3 are used to determine a risk factor. Each listed characteristic of the item of medical equipment is evaluated and a numerical value attached to it. The sum of the numerical values derived from the three figures will establish the numeric risk factor of the equipment item.

(1) Figure G-1 provides a list of general equipment functions.

(a) Select the function from the chart that most closely matches the normal expected use of the equipment under consideration.

(b) Select the number that corresponds to the function selected.

(2) Figure G-2 lists categories of physical risks.

(a) Select from the figure the greatest risk that a malfunction of the equipment could normally be expected to cause.

(b) Select from the number that corresponds to the identified risk factor.

(3) Figure G-3 lists the levels of anticipated maintenance requirements based on the sophistication of the equipment. If there is any history of equipment incidents or failures, you should incorporate that information into your appraisal of the equipment's risk potential.

(a) Determine the expected maintenance level (manufacturer's literature, TMs, field manuals (FMs), incident history, etc.).

(b) Select the number that corresponds to the anticipated maintenance level. (Level 5 might indicate 12 or more repairs per year, while level 1 might indicate 1 or fewer repairs per year.)

b. Add the numbers derived from the three figures to obtain a risk factor and match them to figure G-4.

c. Give items of equipment at risk levels 1 and 2 an AMEDDPAS subsystem code of "B." Items that grade out at risk level 3 would be given an AMEDDPAS subsystem code of "A" and would be serviced only during repair.

G-4. Risk assessment implementation planning.

When you have identified changes to be made, do the following:

a. Develop a plan to implement the changes. Identify existing and potential problems.

b. Coordinate the proposed changes with the safety committee.

c. Provide formal training to optimize available maintenance skills.

G-5. Communication and monitoring.

After you have implemented the changes the following should be done:

a. Communicate the changes to the clinical staff to reassure them that the provided services are still adequate.

b. Monitor the quality and appropriateness of the services provided, identify problems, and make corrective actions.

G-6. Risk assessment implementation.

The final decision on whether or not to alter maintenance service intervals rests with the senior maintenance manager. Decisions this critical should not be left up to subordinates.

G-7. Modification of standing operating procedure.

Incorporate these procedures into your internal SOP.

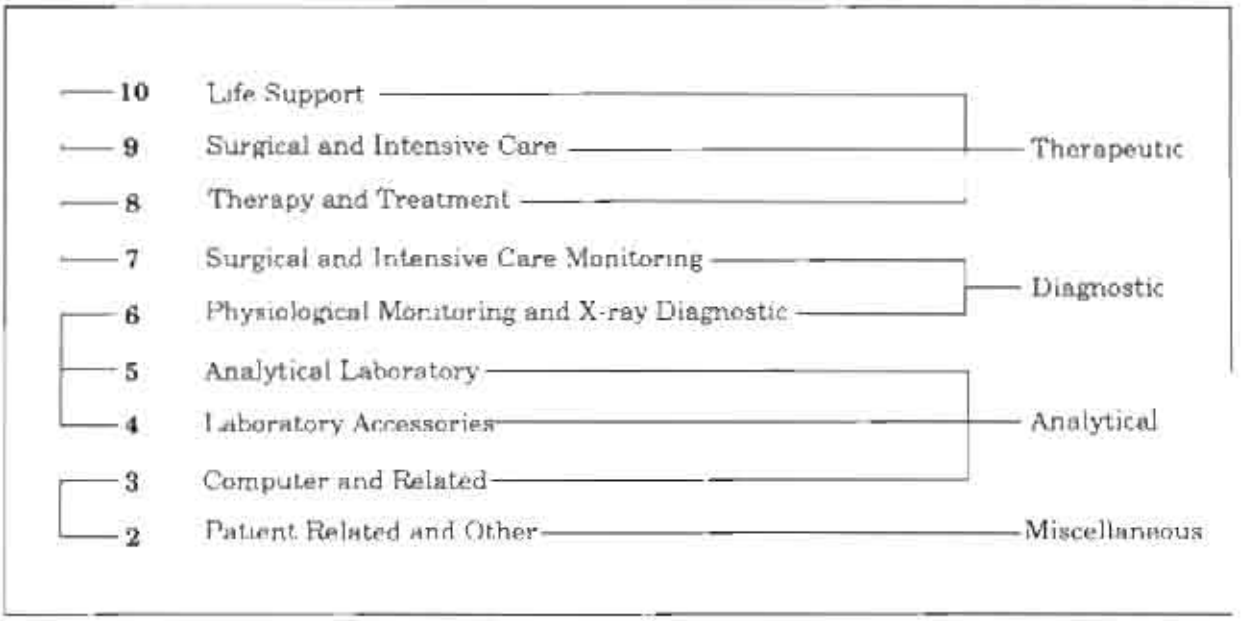


Figure G-1. Equipment function.

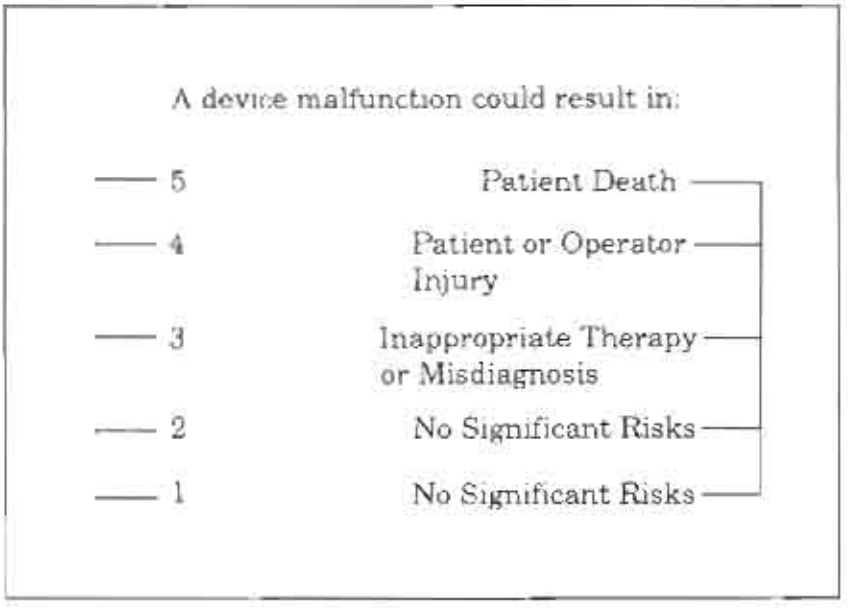


Figure G-2. Physical risks associated with clinical application.

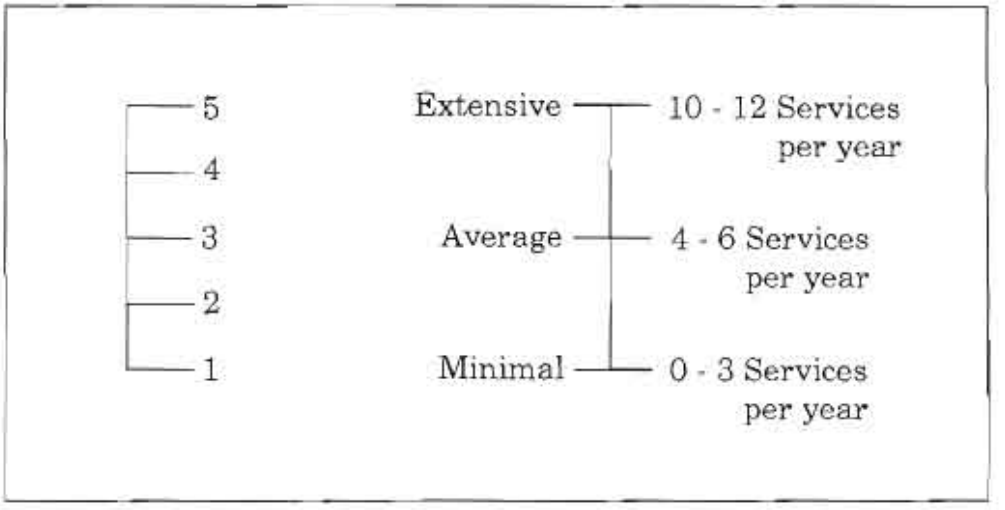


Figure G-3. Maintenance requirements.

Risk Factor	Risk Level	Maintenance Level
15 - 20	1	Semi-Annual
12 - 14	2	Annual
4 - 11	3	Service Only During Repair

Figure G-4. Risk factor.

APPENDIX H

EQUIPMENT REQUIRING CALIBRATION/VERIFICATION/CERTIFICATION

Amalgamator (some)
Analyzer
- Blood Gas/pH
- Pulmonary Function

Anesthesia Apparatus (all)
Apnea Monitor
Audiometer
Auditory Function Screening Device
Balance, Electronic
Balance, Mechanical
Blood Gas/pH Analyzer
Cardiac Output Unit
Centrifuge
- Laboratory, Floor
- Laboratory, High Speed
- Laboratory, Table Top
- Refrigerated

Chromatography Equipment, Gas
Counter
- Blood Cell
- Cell
- Gamma

Defibrillator
Defibrillator/Monitor
Densitometer, Recording
Diathermy Unit
Diathermy Unit, Ultrasonic
Electrocardiograph
- Interpretive
- Multichannel
- Three Channel

Electroencephalograph

Electromyograph
Electronystagmograph
Electrosurgical Unit
Fetal Heart Detector
Fetal Monitor
Hemodialysis Unit
Hood
    Chemical
    Fume
    Isolation, Laminar Air Flow
    Microbiological
Hypo/Hyperthermia Unit
Incubator
    Infant
    Infant, Transport
Injector, Angiographic
Laser
    Argon
    Nd:YAG
Lithotripter, Ultrasonic
Monitor
    Apnea
    Fetal Heart
    Pressure
    Pulse
    Respiration
Nitrous Oxide Analyzer
Oximeter
    Pulse
Oxygen
    Analyzer
Photometer, Flame
Physiologic Monitor
    Neonatal
Pump
  Infusion

Radiographic Units (all)
Spectrometer, Mass
Spectrophotometer
Spirometer
Stimulator
    Nerve
Treadmill
Tympanometer
Ultrasonic Unit
    Diagnostic
    Therapeutic
Urodynamic Measurement
Vectorcardiograph
Ventilator
    Anesthesia Unit
Warmer, Blood
X-ray Apparatus (all)

APPENDIX I

INSTRUCTIONS FOR PREPARING FORM FDA 2579 BY DA PERSONNEL

I-1. General.

All entries will be typewritten or legibly printed in ink with the exception of required signatures.

I-2. Instructions.

The following are instructions for the completion of Form FDA 2579. Numbered paragraphs coincide with the blocks on the form.

a. Block 1, equipment location.

(1) *Block 1a.* Enter the official name of the medical or dental activity in which the specified component or x-ray system is installed.

(2) *Block 1b.* Enter the building number of the facility in which the component or x-ray system is installed.

(3) *Block 1c.* Enter the official name of the installation (if appropriate) where the assembly was accomplished.

(4) *Block 1d.* Use two-letter state abbreviation.

(5) *Block 1e.* Enter local zip code or APO.

(6) *Block 1f.* Enter telephone number where equipment is located, to include area code.

b. Block 2, assembler information.

(1) *Block 2a.* Enter "Medical Maintenance Branch."

(2) *Block 2b.* Enter the building number of the maintenance activity.

(3) *Block 2c.* Enter the official name of the military installation where the maintenance activity is located.

(4) *Block 2d.* Enter two-letter state abbreviation.

(5) *Block 2e.* Enter local zip code or APO.

(6) *Block 2f.* Enter telephone number of the Medical Maintenance Branch to include area code.

c. Block 3, general information.

(1) *Block 3a.* Self-explanatory.

(2) *Block 3b.* Check appropriate box(es). Whenever "Any Other" box is checked, specify the intended use in block 6 (Comments).

(3) *Block 3c.* Self-explanatory.

(4) *Block 3d.* Location of the master control (room and building numbers).

(5) *Block 3e.* Numeric entries are required for month, day, and year.

d. Block 4, component information.

(1) *Block 4a.* Check the applicable box.

(2) *Block 4b.* Enter the manufacturer of the master control.

(3) *Block 4c.* Enter the model number of the master control.

(4) *Block 4d.* Enter the master control serial number.

(5) *Block 4e.* Enter the date manufactured.

(6) *Block 4f.* Enter systems model name (CT systems only).

(7) *Block 4g*. Selected components - Enter the manufacturer, model number, and date manufactured for each beam limiting device, table, and CT gantry, installed as it appears on the component data plate.

(8) *Block 4h*. Other certified components - Enter the number of each certified component(s) in the appropriate blocks. Certified components, such as cassette holders with front panels and image receptor support devices for mammographic x-ray systems manufactured after 5 September 1978, should be entered and specified in the "Other" block. Additional comments may be added in block 6 (Comments), when appropriate.

e. Block 5, assemblers certification.

(1) *Block 5a*. Type or print the DA assembler's name and grade (military or civilian).

(2) *Block 5b*. Self-explanatory.

(3) *Block 5c*. Enter the date the Form FDA 2579 is completed. Numeric entries are required for month, day, and year.

f. Block 6, comments. Indicate if inadequate assembly instructions were provided. Note any potential radiation hazards, etc. Enter the applicable MMCN(s).

APPENDIX J

TI PACKET FOR NEW EQUIPMENT

J-1. Technical inspection process.

It is important that close attention is paid to every step of the TI processing for new equipment. This appendix recommends a method for accomplishing this process.

J-2. Information requirements.

A TI packet is a collection of information about the purchase of equipment and any additional paperwork (work order, checklists, worksheets) needed to document the TI process. Below are documents which should be considered when developing the TI packet:

a. Legible copy of the purchase order.

b. Copy of the packing slip shipped with the equipment.

c. A new equipment TI worksheet (figure 8-2).

d. Locally developed checklist.

e. The work order requesting the TI.

J-3. Maintenance checklist.

A maintenance checklist contains key areas that we want to ensure are not inadvertently overlooked through the TI process. The maintenance checklist is intended to be completed by the MER performing the TI. Below are some suggested items/questions to be included on the checklist:

a. Was the equipment shipping container damaged?

b. Does the equipment require vendor installation or setup?

c. Does the equipment require support from the building engineers prior to installation?

d. Did we receive what we ordered per the purchase order? Did all accessories come with the equipment?

e. Was maintenance and operator literature, in the appropriate quantities, supplied with the equipment? If not, what did the purchase order require the vendor to supply?

f. Is additional TMDE required to maintain the equipment? If so, list the TMDE required.

g. Was an electrical safety test performed on the equipment?

h. Was a CVC service performed on the equipment? Was a DD Form 2163 attached to the equipment with all entries completed?

J-4. Routing and disposition of the technical inspection packet.

a. The work order clerk assembles the TI packet when the equipment and TI work order are received. A pocket folder, preferably of a bright color, can be used to hold all documents. The TI work order is not opened at this time.

b. The maintenance supervisor receives the TI packet from the work order clerk and performs an initial review of the supplied documents in the packet.

c. The MER receives the TI packet and performs the TI, completing the documentation required in the packet. Problems are immediately directed to the maintenance supervisor.

d. When completed, the TI packet is returned to the maintenance supervisor for a final review. Any action required by the maintenance supervisor should be taken at this time, i.e., ordering TMDE. The TI work order can be closed at this time if the equipment is not subsystem "B."

e. The TI packet will be maintained by the maintenance supervisor until the PBO has picked the equipment up on the property book. Once the equipment is listed on the "Repetitive Maintenance Unassigned MMCNs" AMEDDPAS report (Subsystem B only), the TI work order is opened and closed and all maintenance information is input to AMEDDPAS.

f. The TI packet can now become the warranty file for that item of equipment.

APPENDIX K

INSPECTION CHECKLISTS

K-1. Category A - all items.

This checklist, general in nature, will be applied to determine the condition of all items.

a. The overall appearance and finish of the item will be up to organizational standards.

b. Interior and exterior of the item will be free of rust, corrosion, solutions, dirt, lint, and deposits.

c. Doors, drawers, panels, shelves, catches, latches, hinges, stops, door pulls, handles, knobs, and casters will be properly tightened or adjusted to operate smoothly.

d. Component holders, clips, and receptacles will be intact and properly adjusted.

e. Control knobs, mechanical locks, and levers will be securely attached to the driven element and properly indexed.

f. Nuts, bolts, screws, and other hardware will be tight and in good condition.

g. Operator's manual will be on hand in the organizational element utilizing the item.

K-2. Category B - hydraulic/mechanical.

This checklist will be used as a guide to determine the condition of items which employ chains, gears, belts, bearings, levers, and/or hydraulic systems.

a. All gears will be free of excessive backlash.

b. All chains, gears, bearings, and bearing surfaces will be free of excessive wear and properly adjusted.

c. Axles, shafts, and levers will be free of excessive wear and play, and properly lubricated.

d. Belts, pulleys, and levers will be free of excessive wear and properly adjusted and aligned.

e. Hydraulic systems with their trips, locks, stops, and release mechanisms will be free of excessive wear and properly adjusted, fluid level will be proper and the system free of leaks.

f. Casters will be checked and lubricated with general purpose lubricant.

K-3. Category C - positive/negative pressure.

This checklist will be applied to determine the condition of items which involve positive or negative pressures or the use of one or more medical gases, such as oxygen and nitrous oxide.

a. Where applicable, rubber parts, components, and fittings will exhibit original elasticity and shape. They will be free of cracks, splices, punctures, and faulty fittings. When equipment is used in a flammable location, conductivity will be verified in accordance with NFPA 99.

b. High pressure tubing will conform to the above and be free of leaks and frayed covering. All fittings and connectors will be in good condition and securely attached to hose ends.

c. All controls, regulators, flowmeters, and flush valves will be properly adjusted to accurately regulate flow of gas. All temperature indicators will be checked to ensure accuracy.

d. Glass and plastic covers on meters, inspection ports, and containers will be free of cracks and chips. They will be clean and properly positioned for leak-free operation.

e. Safety and "pop-off" valves will be in proper operating condition.

f. Air evacuation systems will be capable of maintaining the desired vacuum within design limitations.

g. Grounding systems will be of the approved type and properly installed.

K-4. Category D - heating/cooling/mixing.

This checklist will be applied to determine the condition of items which heat, cool, regulate, mix, pump, or circulate water and/or produce steam

a. All water and steam chambers will be free of excessive rust, corrosion, and lime deposits

b. All gasket material (such as rubber, cork, and composition type) will be free of breaks or wear which might result in an improper seal

c. Door and lid closing mechanisms will operate freely and be adjusted to ensure a proper seal

d. There will be no leaks (steam or water) in the plumbing, valves, valve packing, regulators, boiling chamber, tanks, or pumps.

e. All valves, regulators, controls, steam traps, and vacuum breakers will operate properly

f. The heating system (electrical, fuel, or steam) will provide the proper temperature and/or pressure in the prescribed time under normal operation

g. Low water cutoff and boiling point cutoff switches will function properly

K-5. Category E - electrical/electronic.

This checklist will be applied to determine the condition of items which employ electrical or electronic components

a. Electrical connectors (jacks, receptacles, or plugs) will be of approved type, free of cracks or breaks, and properly attached to the line cord or cable. Mechanical indexing mechanisms to prevent improper alignment or mating of plugs and receptacles will be free from wear or damage.

b. Cables, cords, and internal wiring will be of an approved type and of proper wire size to safely carry the required current. In addition, all cables, cords, and internal wiring will be of sufficient length and free of unsafe or unsightly splices and of frayed, cracked, abraded, or brittle insulation.

c. Cables, clips, studs, and terminals will be free of dirt, rust, corrosion, and other deposits

d. Switches, circuit breakers, relay points, and selectors will not be dirty, corroded, excessively worn, or pitted

e. Grounding systems will be of an approved type and properly installed.

f. All electrical components (relays, transformers, capacitors, electron tubes and resistors) will operate without overheating

g. Heating elements will produce and maintain the temperature rise required for proper operation.

h. Electrical meters will respond to the appropriate control and indicate properly.

i. Electrical components (such as connectors or switches) on explosion proof equipment will conform to the requirement of the NFPA 99

j. Batteries will be properly charged and free of cracks, breaks, or leaks. Electrolyte of wet cell batteries will be at the proper level

k. Electrical leakage currents shall be within acceptable limits IAW NFPA 99. Unless specified otherwise, frequency and procedures for testing leakage current shall be as prescribed by AR 40-61, NFPA 99, and this bulletin.

K-6. Category F - electric motors.

This checklist will be applied to determine the condition of items which employ electric motors

a. The electric motor will operate under load without excessive variation, hunting (varying speed), or noise

b. The electric motor will operate without excessive temperature rise when operated at the rated duty cycle and mechanical load.

c. The mechanical linkage between motor and load (belts, pulleys, chains, gears, and shafts) will be adjusted for proper drive and be free of excessive wear.

d. Oil and grease seals of rotating and reciprocating members will be in place and there will be no evidence of excessive leaks.

e. Brushes, brush rigs, and commutators will be clean and free of excessive wear. Brushes and brush rigs will be properly adjusted and free of excessive arcing during operation.

f. The bearings of the motor and mechanical load will be clean, free of excessive wear, and properly lubricated.

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

Distribution:

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GLOSSARY

Section I. ABBREVIATIONS

ADSM	Automated Data Systems Manual
AHJ	Authority Having Jurisdiction
AMDF	Army Master Data File
AMEDD	Army Medical Department
AMEDDPAS	Army Medical Department Property Accounting System
AMS	Army Management Structure
AOD	Administrative Officer of the Day
AR	Army Regulations
ARC	Accounting Requirements Code
AWOL	Absent Without Leave
BS	Bench Stock
BSL	Bench Stock Level
CAP	College of American Pathologists
CCU	Critical Care Unit
CEEP	Capital Expense Equipment Program
CFR	Code of Federal Regulations
CONUS	Continental United States
COR	Contracting Officer Representative
CP	Control Period
CSDP	Command Supply Discipline Program
CT	Computed Tomography
CTA	Common Table of Allowance
CVC	Calibration/Verification/Certification
DA	Department of the Army
DIO	Director of Industrial Operations
DMSB	Defense Medical Standardization Board
DOD	Department of Defense
DOL	Director of Logistics
DPSC	Defense Personnel Support Center
DRMO	Defense Reutilization and Marketing Office
DS	Direct Support
EC	Environment of Care
ECRI	Emergency Care Research Institute
EO	Equipment Operator

EPA	Environmental Protection Agency
ER	Emergency Room
FDA	Food and Drug Administration
FM	Field Manual
FY	Fiscal Year
GS	General Support
HAZCOM	Hazard Communications
HQ	Headquarters
IAW	In Accordance With
ICU	Intensive Care Unit
IMA	Information Mission Area
IMAE	Information Mission Area Equipment
IMO	Information Management Office
IMSA	Installation Medical Supply Activity
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
MACOM	Major Command
MARKS	The Modern Army Recordkeeping System
MEDCASE	Medical Care Support Equipment
MEDCEN	Medical Center
MEDCOM	Medical Command
MEDDAC	Medical Department Activity
MEDSTEP	Medical Standby Equipment Program
MEL	Maintenance Expenditure Limit
MEPCOM	Military Entrance and Processing Command
MEPS	Military Entrance Processing Stations
MER	Medical Equipment Repairer
MERP	Mission Essential Repair Parts
MMCN	Materiel Management Control Number
MMBP	Medical Materiel Benefits Program
MMPR	Monthly Maintenance Performance Report
MO	Minimum Order
MOS	Military Occupational Specialty
MOU	Memorandum of Understanding
MPR	MEDCASE Program Requirement
MSTF	MEDCASE Support Transmittal Form
MTF	Medical Treatment Facility
NCDRH	National Center for Devices and Radiological Health
NCO	Noncommissioned Officer

NIST	National Institute of Standards and Technology
NFPA	National Fire Protection Association
NICAD	Nickel Cadmium
NIIN	National Item Identification Number
NMP	National Maintenance Point
NSF	Net Square Feet
NSN	National Stock Number
OEM	Original Equipment Manufacturer
OR	Operating Room
OSHA	Occupational Safety and Health Act
OST	Order and Ship Time
PAM	Pamphlet
PASS	Preacquisition Site Survey
PBAC	Program Budget Advisory Committee
PBO	Property Book Officer
PLL	Prescribed Load List
PMCS	Preventive Maintenance Checks and Services
PMO	Property Management Office
PTSM	Plant, Technology, and Safety Management
RCC	Recoverability Code
REG	Regulation
RMC	Regional Medical Command
RO	Requisitioning Objective
ROP	Reorder Point
RPPF	Radiation Protection Program File
SB	Supply Bulletin
SL	Stock Level
SMAC	Scheduled Maintenance Area Code
SMDA	Safe Medical Devices Act
SOP	Standing Operating Procedure
SOW	Statement of Work
SSA	Supply Support Activity
STAMMIS	Standard Multi-Command Management Information System
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TDA	Table of Distribution and Allowance
TDY	Temporary Duty
TI	Technical Inspection

TM	Technical Manual
TMDE	Test, Measurement, and Diagnostic Equipment
UPS	Uninterruptible Power System
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAMMA	United States Army Medical Materiel Agency
WO	Warrant Officer

Section II. TERMS

Accessories

SB 8-75-MEDCASE defines accessories as items which enhance or provide additional capabilities to an end item. An accessory may be expendable, durable, or nonexpendable. Whereas a component is a functional element of a set or system, an accessory is considered to be a supplementary item. A transducer for an ultrasound scanner is a component of that end item. Additional transducers, which provide additional capabilities, are considered to be accessories to the end item.

Calibration/verification/certification

The verification of the calibration of an item of equipment compared to the original manufacturer's specification using calibrated TMDE. Physical calibration is not accomplished unless the verification step indicates the system is within tolerances. The final step to every verification and/or calibration is to certify compliance by affixing a completed DD Form 2163, Medical Equipment Verification/Certification.

Equipment maintainer

Personnel trained in the repair of medical equipment. Assigned Army personnel are in MOSs 670A, 91A, and appropriate civilian repairer/engineer series.

Equipment operator

The person responsible for operating an item of medical equipment and providing before, during, and after operator maintenance. These services may consist of dusting, washing, cleaning, checking for loose or missing hardware, checking for frayed cables, and replacing operator replacement items and accessories.

Extended installation

The following is the specification for extended installation taken from a DPSC contract:

When the contractor is expected to furnish design plans, labor, materials and equipment necessary to provide for installation, in accordance with the "Pre-Installation Site Survey" to accommodate the designated x-ray system. The installation effort shall incorporate nationally recognized trade organization codes and reflect the minimum requirements to provide a safe and functional system.

Extended installation shall, as a minimum, include connecting with existing utilities, furnishing and installing support structures for the equipment. The contractor shall supply a preliminary work statement and single line room drawing when the proposal is submitted. The submission of the work statement will constitute verification that the existing utilities are adequate for the system.

	Extended installation may include, but is not limited to: Transformers, power runs, disconnects, conduit, wiring, structural support, shielding and HVAC when required to support system operation. Surfaces of partitions, shielding and other structural additions shall be sealed and primed, but without final finish.
Isolated input/isolated patient lead	A patient lead having a high resistance to ground or to either conductor of the equipment's power cord. If the patient lead is connected between ground or to either conductor of the power cord, the result would be current flow below a hazardous limit in the lead. Ideally the isolation would result in infinite impedance between the patient lead and ground or the power cord conductors, with no current flow when the patient lead is connected to either. On ECG's, the isolation is commonly made using an isolation transformation at a point on the apparatus where the patient cable enters the chassis but prior to making connection to any of the equipment's electrical circuits.
Maintenance supervisor	The individual assigned to the medical maintenance branch who works for the senior maintenance manager and is responsible for the day-to-day maintenance operations.
Nontechnical equipment	Equipment that is usually mechanical, electromechanical, or electrical requiring only basic skills to maintain; not normally incorporating any solid state components or printed circuit boards. This equipment will not compromise or jeopardize a patient's health or well being.
Operator replacement item	Paragraph 1-11 above addresses responsibilities of the user/operators of equipment. In the execution of their responsibilities, user/operators of equipment are responsible to order those items and accessories that do not require installation/repair by a MER. Items and accessories (handpieces, transducers, etc.) that can be replaced by users/operators are not classified as repair parts, but user replacement items. User replacement items do not require extensive disassembly of the item, critical alignment or adjustment after replacement, or tools. Users/operators should not attempt repairs beyond those authorized as part of operating technique.
Patient vicinity	The space, in which patients are normally cared for, with surfaces likely to be contacted by the patient or an attendant who can touch the patient. Within a patient room, the patient vicinity is considered to be 6 ft beyond the perimeter of the bed and extending vertically to 7.5 feet above the floor.
Preventive maintenance checks and services	A program of systematic care, servicing, and inspecting of equipment to maintain it in a standard serviceable condition and to detect and correct minor faults before they develop into major defects.
Repair parts	AR 40-61, AR 750-1, and this bulletin assign the responsibility of maintenance and repair of medical equipment to qualified MERs. AR 310-25 defines a repair part as any part, subassembly, assembly, or component required for installation in the maintenance or repair of an end item.
Senior maintenance manager	The individual assigned to the medical maintenance branch with overall responsibility and authority for managing the medical maintenance operations for the MTF. Also may be referred to as the Maintenance Manager. In the case of this individual's absence, the person filling the position of NCO would assume responsibility.
Surveillance	A visual inspection of the equipment or its sealed storage container to determine if there is a need to perform a more in-depth operation test or technical inspection.

Technical equipment	Equipment usually requiring an increased knowledge of electronics as compared to the skill level required to maintain nontechnical equipment. It is usually electronic, incorporating printed circuit boards. This equipment is included in the AMEDDPAS database as subsystem "B."